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RICHMOND, VA., JANUARY, 1928

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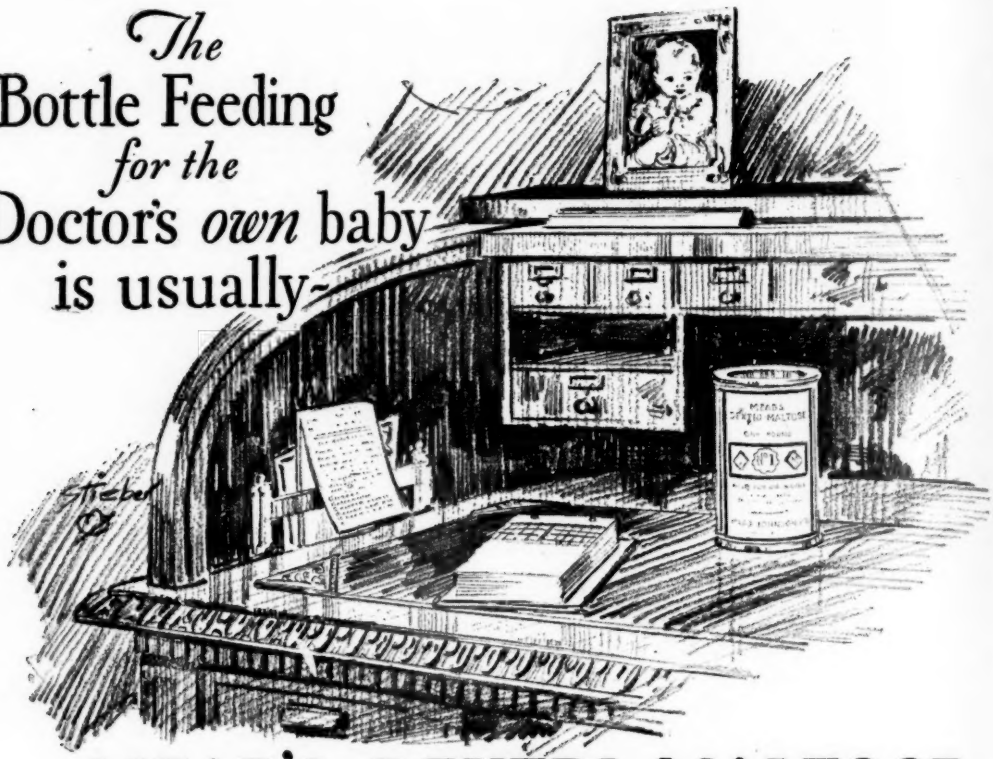

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THE LIFE OF LORD LISTER.

By EDMUND J. HORGAN, M. D., F. A. C. S., Washington, D. C.

It is an interesting coincidence that Louis Pasteur and Joseph Lister were born within the same decade; one in 1820, the other in 1827. A new era of surgery dawned upon the world during their lives and these two men played an important part in it, enlightening us by their investigations and contributions to the solution of a problem which had baffled surgeons since the beginning of the practice of this art.

The researches of Pasteur are proof that all scientific investigation, if carefully done and accurately recorded, has an inestimable value. Little did any one think when Pasteur made his contribution explaining the process of fermentation that in his work lay hidden the secret by which there would be divulged to the world the mode of contamination, infection and suppuration of living tissues by bacteria. This latter privilege was Lister's but it was his because he had prepared himself by previous scientific investigation. Pasteur was a true scientist, Lister a practical worker and an investigator.

Lister maintained an investigative state of mind throughout his professional career. This has brought us many benefits. As a dresser, a surgical assistant, and a surgeon he had observed too many times the sad termination by death of a patient who had a compound fracture or a lacerated wound. He knew that an incision made by a surgeon in order to perform an operation was nearly always followed by suppuration, erysipelas, or hospital gangrene and in a majority of these cases death would occur. He had also observed that when the skin was not broken a simple or a comminuted fracture would unite promptly and a contusion of the soft tissues would heal readily; that they would not suppurate and that the danger was slight. These facts were known to all surgeons of that period and for this reason the scope of the field of surgery was limited. It was only in a few of the larger hospitals and teaching institutions where the specialty in surgery was practiced. Most of the surgery of that day was done by those who were also engaged in the general practice of medicine. Surgery was confined to the treatment of dislocations, fractures, traumatic wounds and those conditions which urgently required operation by the surgeon. On account of the disastrous results which were known to follow incision, only those operations which were absolutely necessary were performed.

Joseph Lister was born on the 5th of April, 1827, at Upton in Essex. He was the son of Joseph Jackson and Isabella Harris Lister, of the Society of Friends. His birthplace was a lovely old Queen Anne house with beautiful gardens, surrounded by fields which have since been built upon and are now a part of London.

Little is known of Lister's ancestors beyond a few generations although many Listers lived in Yorkshire. His parental great-grandfather, Joseph Lister, son of Thomas Lister, a maltster and farmer, left Bingley in Yorkshire about 1720, going to London where he established himself as a tobacconist. His grandfather, John Lister, was apprenticed to a watchmaker, and followed that trade for a time but gave it up to take over the business of his father-in-law, Stephen Jackson, a wine merchant. Lord Lister's father, Joseph Jackson Lister, was apprenticed to the wine business and at the age of twenty-two was able to take charge of it during his father's absence. It was a prosperous concern and still flourishes. Lister's maternal grandfather, Anthony Harris, a Quaker and a master marine of Maryport, married Isabella Bull, of Dublin, Ireland. Harris was drowned at sea, leaving his wife with six children. She took over the superintendency of Ackworth, a Friends' school near Pontefract, and it was there that Joseph Jackson Lister met one of her daughters, Isabella, to whom he became engaged and later married. On one of his visits to Ackworth, Joseph Jackson Lister went to Bingley in Yorkshire, which he re-

ferred to as "the point where in tracing back the line of our ancestors our information terminates." In a letter written to his father from there he said, "How soon oblivion covers the memory of the race that has ceased to live, and except a few who have been made renowned by intellect, by action or by station all trace is lost that they had ever been, even to their immediate descendants, so I find it here." Little did he realize when he wrote these lines that he would one day have a son who would leave his name indelibly written in the history of surgery.

The Society of Friends to which the Listers and Harrises belonged was made up of frugal, sincere people. They did not participate in sports such as shooting or hunting, nor did they dance, play music or attend the theatres. Their special costume was plain and did not conform to the prevailing fashion of the day. As their lives were simple and their attention to business strict, many of them became wealthy. Their leisure moments were given to reflection, reading and the studying of languages. Some few devoted their time to science.

To give you an idea of how strict and studious they were John Lister, when aged fifty-nine, wrote to his son, Joseph Jackson Lister, then aged ten, "On inquiring after thee from J. Vully the usher, I hear that he has to complain of thy being so very long in writing about ten lines of copy, and with learning a little spelling, that two and one-half hours are often taken up therewith, which am satisfied thou mightest easily accomplish in one hour, so that thou hast but little time for the Latin, this has made me sorry." He ended his rather long letter with this postscript: "I think I have not been half an hour writing this though often interrupted and hope a word to the wise will be sufficient. We intended to have sent thee a plumb cake, had we heard a better report account but shall now leave it till another time." Lord Lister's father, the boy to whom this letter was written, left school at the age of fourteen to enter business but found time to devote to optics and in the pursuit of this subject his discoveries and contributions gained for him the Fellowship of the Royal Society in 1832, and a world wide reputation.

His son, Joseph Lister, was reared in an environment that taught him to be sincere, industrious, and studious. As a boy he attended private schools and his diligence was rewarded by his high standing amongst the pupils. At Grove House, Tottenham, he was given instruction in the ordinary courses of such private schools which included the natural sciences, modern languages and the classics. The pupils were required to write essays in order to train them in grammatical construction and composition. More than thirty of Lister's compositions are preserved and were written when he was between fourteen and sixteen. In this collection there are four on "The Human Structure—Osteology" and one on "The Similarity of Structure between a Monkey and a Man," illustrated by Lister's drawings.

How industrious young Lister was and how little time he devoted to play may be judged by a letter written at the age of fourteen to his father while he was home on one of his holidays.

"As this is the last day I shall be here for some time, I thought I must just write a short note to thee to tell thee how I spent my time when Mamma was out, and also after she came home. When Mamma was out I was by myself and had nothing to do but draw skeletons, so I finished the cranium and named the bones of it, and also drew and painted the bones of the front and back of the hand, and named them. Mamma come home on seventh day, at about 2 o'clock, and in the evening, with John's help, I managed to put up a whole skeleton, that of a frog, and it looks just as if it was going to take a leap, and I stole one of Mary's pieces of wood out of one of the drawers of the cabinet in the museum, to stick it down upon, and put it on the top of the cabinet with a small bell glass over it, and it looks rather nice."

This letter also shows that at the age of fourteen he was developing the traits which made him the painstaking surgeon and investigator which led to his discoveries and fame.

As Quakers refused to take an oath or subscribe to the thirty-nine articles, they were barred from the old Universities. When Lister left Grove House he matriculated, in 1844, at the age of seventeen, at University College, London, a non-sectarian institution. Three years were passed in taking the subjects leading to the degree of B. A., which his father considered necessary in preparation for the study of medicine.

After an attack of small-pox and a nervous breakdown, he was required to take a long

vacation but in 1848 he was well enough to enter upon the study of medicine. He began the study of surgery shortly after the discovery of anaesthetics and as a freshman saw Robert Liston perform his first operation on a patient under ether anaesthesia at University College.

Lister's work was in earnest and in the examinations of the students of the schools of London he took honors which placed University College second. In 1852 he had acquired the degree of M. B., and the Fellowship of the Royal College of Surgeons.

About this time Lister was interested in ophthalmology and his interest led him to investigate the contractile tissue of the iris. He was able to show for the first time the existence of two distinct muscles in the iris, the dilator and the contractor, for enlarging and diminishing the pupil. This work was published and shortly afterwards he published a paper on the involuntary muscles of the skin. His first work in experimental surgery was done in 1853 upon the mesentery of the mouse and proved that there was no rhythmic contraction of the lacteal vessels and that no solid particles were absorbed and carried by them.

After completing his studies at the University of London in 1853 he decided to obtain a training in surgery. Upon the advice of William Sharpey, physiologist, who had studied in Edinburgh and in Paris, he decided to go to Syme in Edinburgh for a month, and then go to the schools in Continental Europe. Mr. Syme received him upon his arrival in Edinburgh and at once offered him the opportunity of assisting with private operations and put him to work at the hospital. After a month in Edinburgh, he decided to remain all winter and later his time for remaining in the North was lengthened to twenty-four years. During his first winter he was given the house surgency under Syme. He served for a long period in this position and had twelve dressers under him. His position was really that of surgeon with Mr. Syme as consulting surgeon and Lister had the opportunity of performing most of the operations. Later he was appointed assistant surgeon at the infirmary and became one of the "extra-mural" teachers of surgery. On April 21, 1855, he was elected a Fellow of the Royal College of Surgeons of Edinburgh. In the summer of this same year he became engaged to Agnes Syme, the eldest daughter of his devoted teacher and friend. It was at this time that he gave up his connection with the Society of Friends and became a member of the Episcopalian Church. The marriage took place at Millbank, the home of Syme, on April 23, 1856. One month was spent by the young couple at the English Lakes and at Upton and three months on a tour of the continent. On this trip Lister visited most of the celebrated medical schools and met the well-known teachers of the day.

In September, 1855, his records show the beginning of experiments on the web of the frog's foot in his study on "Early Stages of Inflammation." This was a most important investigation and prepared him for the study of infection which he was to take up later.

Lister's next investigation was upon the coagulation of the blood. He disproved some of the older theories and he showed that there was imparted to the blood by the corpuscles "a disposition to coagulate." This was followed by a paper on "Spontaneous Gangrene." His papers had been widely read, one had been translated into the German, and he had become well-known, so much so that when Dr. Lowrie, the Professor of Surgery in the University of Glasgow, could no longer practice, Lister was considered a likely candidate. The professorship was offered him and on March 9, 1860, the formal "induction" took place. It gave him an opportunity for teaching and research but he was without a hospital service. After fifeen months he received the appointment as surgeon to the Royal Infirmary but it was not until November, 1861, that he performed his first operation in Glasgow. He was not idle while waiting for the surgency. He had prepared the article on "Amputation" for "Holme's System of Surgery" and he had devised a tourniquet for controlling the flow of blood through the abdominal aorta, especially in connection with amputation of the lower extremities.

In June, 1864, the chair of professor of systematic surgery in the University of Edinburgh became vacant by the death of James Miller; Lister became a candidate for the position but did not receive the appointment. This was a disappointment as Lister preferred the life at Edinburgh and the association with Syme to the condition at Glasgow and neither he nor his wife were happy there.

About this time the seriousness of wound infection was receiving considerable attention. Statistical studies had been made to compare

the results in various parts of Europe and America and all were disappointing. No method had been employed to prevent this dreaded "wound infection", the cause of which was not known. Antiseptics were known and used, but all, except chlorinated soda, with little success. This substance had been used by Semmelweis. His work had only been published in 1861 and was not well-known. Of those who knew of his work very few accepted it. Carbolic acid had been discovered in 1834 by Runge, and it was not until 1863 when Jules Lamaire wrote a book about it that it attracted much attention. He accepted the "germ theory" as the explanation of putrefaction and he used carbolic acid in various forms in the treatment of many medical and surgical diseases. Lister knew nothing of this work until his attention was called to it in 1867, after his papers "On the Antiseptic Principle in the Practice of Surgery" had appeared.

In 1865, Dr. Thomas Anderson, Professor of Chemistry, called Lister's attention to the work and writing of Louis Pasteur which dealt with fermentation and putrefaction. He immediately saw the important bearing this might have upon the problem of suppuration and wound infection. He learned from Pasteur's work that putrefaction was similar to the process of fermentation, that it was brought about by the growth and activity of microscopic organisms similar to those causing fermentation. This was a startling revelation, for, if it were true, the mystery of wound infection would be cleared up. Lister considered the air as a source of infection, but in the treatment of a wound he recognized the need of destroying the germs already in the wound and that it was equally important to purify his hands and instruments and any other material likely to come in contact with the wound.

It occurred to Lister "that decomposition in the injured part might be avoided without excluding the air, by applying as a dressing some material capable of destroying the life of the floating particles. He considered carbolic acid to be the most practical for his clinical experiments. Dr. Thomas Anderson, Professor of Chemistry, gave him some crude carbolic acid and with it he carried out his experimental treatment of compound fractures.

In the spring of 1866 he had occasion to treat compound fractures and establish his principle. It was gratifying for him to realize, in the way of healing of wounds, what he had anticipated. Cases which had previously suppurated or developed hospital gangrene healed promptly. His method was to cleanse thoroughly the surface of the broken limb. Then he would squeeze out all clots that could be loosened from the wound. With a piece of lint soaked in undiluted carbolic acid the wound would be carefully swabbed. Another piece of lint soaked in the carbolic acid was used to cover the wound and over this a piece of black tin was placed to prevent the evaporation of the acid. His object was to have a dressing which would prevent the growth of microbes and at the same time be non-irritating. The first dressing did not fulfill all these requirements because the acid produced sloughing. A mixture of carbolic acid and linseed oil was tried but did not prove to be satisfactory. He then made a dressing of ordinary putty but in the linseed oil which he used to mix with the carbonate of lime he mixed carbolic acid in the proportions of one to four. After a sufficient number of cases had been treated the method of treatment was published in *Lancet* in the spring of 1867, the title being, "On a New Method of Treating Compound Fracture, Abscess, Etc., with Observation on the Condition of Suppuration." He very shortly published another paper "On the Antiseptic Principle in the Practice of Surgery." The publication of these contributions immediately caused much comment and controversy, the storm of protest being led by Sir James V. Simpson. It was difficult, it seems, for most of the surgeons of that day to make a distinction between a "carbolic acid treatment of a wound" and a "new antiseptic principle that had been established." The principle:

Killing all microbes which were in the wound.

Killing all microbes which were on surface near the wound.

Apply a dressing which would prevent the growth of microbes in the exudate from the wound.

Washing surgeons' hands with antiseptic solution.

Washing all instruments with antiseptic solution.

Washing all utensils with antiseptic solution.

Up to this time the long ligatures with ends hanging out of the wound were still in use. These ends were left hanging out so the knot

could be pulled out of the wound when the tissues to which it was tied sloughed. Lister found that with the antiseptic method the ligature could be cut short and buried. Later he introduced catgut as a substitute for silk and linen. He found by his experimentation that the catgut was absorbed but that it was replaced by a fibrous tissue so that in ligating an artery the obliteration of the vessel would remain after the absorption of the catgut. This was proven by experiments upon a calf while at Upton during a Christmas holiday.

Lister's next thought was the performing of operations under antiseptic conditions. To accomplish this he developed a carbolic acid sprayer to destroy the bacteria in the atmosphere in the neighborhood of the operative field. At first he used a hand spray which was operated by several assistants during the operation. This was called the "donkey engine". Later he perfected one that was operated by steam. In addition to this precaution the skin of the patient, the surgeon's hands, all instruments and utensils were washed with the carbolic acid antiseptic solution.

It was about this time that one of his sisters was found to have a malignancy. Lister realized the danger of the disease and also the danger of operating under the conditions which then existed. Having the greatest faith in his own method and confidence in his ability he decided to operate upon her himself. It was a great ordeal for him but the operation was satisfactorily performed. The recovery of his sister was rapid and the source of much gratification, for not only was the method of operating new but also the operation itself.

Lister found that the antiseptic mixture of carbolic acid caused irritation of the wound, so after treating a wound or performing an operation he applied what he called a protective. Many substances were used and many hours spent in experimenting for a suitable covering. Finally he developed and decided upon the use of oiled silk covered with copal varnish and coated with dextrine and starch. This "protective" was a dressing placed in contact with the wound to "exclude the antiseptic". Once the wound was thoroughly treated with the antiseptic he advised that it "be let alone". The complete dressing consisted of "an antiseptic to exclude putrefaction, with a protective to exclude the antiseptic."

Drainage of wounds was commonly employed but the material for drainage was lint. Chassaignac, in 1859, had used rubber tubes for drainage of abscesses. Lister introduced them for the drainage of recent wounds in 1871. While in Scotland this year, Queen Victoria developed and axillary abscess. Lister was called by his friend, Sir William Jenner, to incise it. He at first used a piece of lint for drainage, but he found upon removing it the next day, that it had plugged the wound, so he used a rubber tube and obtained adequate drainage.

Following this he again took up the study of the ligature. His first method of preparing the catgut was by soaking it in a strong solution of carbolic acid. This method was not quite satisfactory and it was difficult to find one that was. The subject continued to interest him throughout his life and it was not until 1906 that he perfected his final process of treating the gut with chromic sulphate and corrosive sublimate.

In the spring of 1869 Mr. Syme had a paralytic stroke. In the summer he resigned the chair and, on August 18th, Lister received news of his election to the professorship. The move to Edinburgh was in October of that year and he remained until the fall of 1877. While Professor of Surgery at Edinburgh, he conducted many investigations on wounds and infections, repeated many of Pasteur's experiments in the growing of bacteria, and published a number of papers. This was in addition to his teaching, operating and consulting.

Lister's work was not received well by the surgeons of the British Isles. In France it was only followed by a few and the first published account was in 1876. This was by Dr. Just Lucas-Championiere. The first German surgeon to adopt the method was Thiersch of Leipzig. He was followed by Volkmann and von Bergmann. In 1876 he visited the continental clinics and saw his principle being carried out in most of the large hospitals in Germany but not elsewhere. In America the work of Lister was not well-known and did not receive much attention or arouse much interest until the principle was explained by Lister in his address at the Medical Congress at Philadelphia in 1876.

On February 10, 1877, Sir Wm. Ferguson, Professor of Clinical Surgery at King's Col-

the results in various parts of Europe and America and all were disappointing. No method had been employed to prevent this dreaded "wound infection", the cause of which was not known. Antiseptics were known and used, but all, except chlorinated soda, with little success. This substance had been used by Semmelweis. His work had only been published in 1861 and was not well-known. Of those who knew of his work very few accepted it. Carbolic acid had been discovered in 1834 by Runge, and it was not until 1863 when Jules Lamaire wrote a book about it that it attracted much attention. He accepted the "germ theory" as the explanation of putrefaction and he used carbolic acid in various forms in the treatment of many medical and surgical diseases. Lister knew nothing of this work until his attention was called to it in 1867, after his papers "On the Antiseptic Principle in the Practice of Surgery" had appeared.

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Following this he again took up the study of the ligature. His first method of preparing the catgut was by soaking it in a strong solution of carbolic acid. This method was not quite satisfactory and it was difficult to find one that was. The subject continued to interest him throughout his life and it was not until 1906 that he perfected his final process of treating the gut with chromic sulphate and corrosive sublimate.

In the spring of 1869 Mr. Syme had a paralytic stroke. In the summer he resigned the chair and, on August 18th, Lister received news of his election to the professorship. The move to Edinburgh was in October of that year and he remained until the fall of 1877. While Professor of Surgery at Edinburgh, he conducted many investigations on wounds and infections, repeated many of Pasteur's experiments in the growing of bacteria, and published a number of papers. This was in addition to his teaching, operating and consulting.

Lister's work was not received well by the surgeons of the British Isles. In France it was only followed by a few and the first published account was in 1876. This was by Dr. Just Lucas-Championiere. The first German surgeon to adopt the method was Thiersch of Leipzig. He was followed by Volkmann and von Bergmann. In 1876 he visited the continental clinics and saw his principle being carried out in most of the large hospitals in Germany but not elsewhere. In America the work of Lister was not well-known and did not receive much attention or arouse much interest until the principle was explained by Lister in his address at the Medical Congress at Philadelphia in 1876.

On February 10, 1877, Sir Wm. Ferguson, Professor of Clinical Surgery at King's Col-

lege, London, died. Lister became a candidate for this appointment but it was given to Mr. John Wood. However, an additional chair of Clinical Surgery was created and Lister was elected on June 18th.

Lister had been lured to London by visions of a professorship in one of the large medical schools, the opportunity to teach his methods in the city of London to a great number of students and also be a consulting surgeon. However, his return to London was to a small class and to a small surgical service. He began about this time to reap the rewards of his contributions to surgery. Many invitations and requests to address the leading scientific societies in England and continental Europe were received. This gave him an opportunity to appear before the most prominent scientists of the day. Honors were showered upon him. Lister had been Surgeon-in-Ordinary to the Queen of Scotland. Soon after he came to England he was appointed Surgeon-in-Ordinary to Her Majesty. In 1883 he was made a Baronet.

In 1890 he delivered an address at the Berlin Congress which followed the address by Virchow and was followed by the address of Koch. The presence of these three men made this a great occasion and it was at this Congress that he met the Professor Baccelli, who informed him that his effigy was to appear on the tympanum of the Policlinic Umberto I at Rome. In 1892 Lister attended the Pasteur Jubilee at the Sorbonne in Paris.

The retiring age for the professors at King's College is sixty-five and in 1892 Lister's term of service automatically ceased.

In 1893 Lister and his wife went to the Italian Riviera for a holiday. While there, Lady Lister developed acute pneumonia from which she died in a few days. His last days without his wife and without his work were rather sad and uncolorful, but he had many late honors conferred upon him and many of his friends kept in close touch with him. In 1897 he was elevated to the peerage by Queen Victoria. Almost to the end he was interested in the scientific progress of surgery and would freely discuss it with those who came to see him.

In the latter part of 1909 his sight and hearing became much impaired—he could not read nor write. He dictated many letters and liked to have books and papers read aloud to him. Towards the end of the year he was confined almost entirely to his bed, but occasionally could sit in a chair. During the next two years there is little to record of his life and on February 10, 1912, he died.

We see in Lister's passing the closing of a truly epoch-making era, and with it the dawn of modern surgery. It was he who brought to a focus the knowledge gained by his predecessors and contemporaries concerning microbic activity, and then from his researches evolved principles which were courageously applied in his own operating rooms and proven true. His acumen, with his untiring search for the truth, has left to us an heritage of great value.

1801 *Eye Street, Northwest.*

SOME FEATURES OF CANCER OF THE COLON AND RECTUM.*

By J. SHELTON HORSLEY, M. D., Richmond, Va.

There are certain general principles that appear to underlie cancer of the gastro-intestinal tract,—or of any region. The direct cause of cancer is not known, but the direct cause of the bacteriological diseases cannot be said to be known. Tuberculosis, for instance, is due to the bacillus of tuberculosis, but we are ignorant of what produces this bacillus. It does not seem probable that cancer is due primarily to bacteria, though doubtless bacteria may play a part in its development, just as many irritating agents do. It has been well established, for example, that painting the ears of certain rabbits or mice with coal tar, if repeated sufficiently, will initiate a neoplasm that has all the clinical signs and symptoms of malignancy and will metastasize. After the irritation has induced the cancer, no further treatments with tar are necessary. Tar acts as an irritant. In the same way sores about the mouth, particularly irritation from smoking, or frequent trauma from jagged teeth, induce malignant cell growth; even though injury to well stabilized tissue, as the palms of the hands or soles of the feet, does not result in cancer. In like manner, one of the prominent causes of cancer of the colon or rectum is papillary or adenomatous growth. It is well known that papillomas or warts are caused by irritants and a benign papilloma of the colon is often a stage between the original irritant and the malignant growth. It seems doubtful if any cancer originates directly as

*Read before a meeting of the Norfolk and Western Railway Surgeons' Association, Virginia Beach, September 28, 1927.

a primary lesion without the intervention of a benign growth or an inflammatory or irritating lesion.

Certain individuals have more inhibitive power against the overgrowth of cells than others. When this occurs the ulcer or papilloma will probably continue benign, and it is this inhibitive power that makes the hereditary feature Maud Slye has so brilliantly demonstrated in mice. In human beings it may be either present or lacking. If it is lacking, the individual will probably develop cancer not because of inheriting malignancy, but because of inheriting a deficiency in inhibitory control of cell over-growth.

Fig. 1.—Drawing of carcinoma of sigmoid removed from patient, Mrs. M. H. DeH., aged 53. The family history was negative for cancer. Symptoms began only three months before admission, with gas, severe pain, and passing mucus and blood after taking castor oil. The patient entered the hospital with symptoms of obstruction. She had lost 35 pounds in weight. Operation April 18, 1923, was resection of sigmoid. After a somewhat stormy convalescence she recovered. When last heard from two years and four months after operation there was no evidence of recurrence.

Cancer of the stomach claims more victims by far than cancer of any other organ of the body. The last statistics from the registration area show that in approximately 100,000 deaths from cancer in 1924, about one-third were from cancer of the stomach. This is doubtless because cancer of the stomach may sometimes appear without previous symptoms of consequence and when attention is called to it the disease is already far advanced. Then, too, there are other cases of cancer of the stomach that develop from peptic ulcer of the stomach. When a large peptic ulcer is treated medically, the physician has a very grave responsibility because of the possibility of malignancy developing from gastric peptic ulcer, whereas when peptic ulcer is in the duodenum there is but little chance of malignancy developing.

Cancer of the colon or rectum, while not so frequent as cancer of the stomach, usually gives earlier symptoms and the diagnosis is consequently prompter.

Cancer of the colon or rectum occasionally occurs in young adults, but it is more frequently found in those over thirty-five years of age. There are no classical symptoms. Sometimes there is blood in the feces. It may develop as a mass around the cecum that is supposed to be inflammatory exudate from an appendix; occasionally when the abdomen is thin the cancer is first indicated by a movable almost painless lump somewhere in the region of the colon. Often the first sign is intestinal obstruction. Frequently cancer develops from a benign adenoma or papilloma in the colon or rectum. In the rectum, early hemorrhage or discomfort is so frequently attributed to hemorrhoids that digital examination may not be made. A thorough digital examination of the rectum will go a long way to clearing up a diagnosis of a rectal lesion, and it is even more important than examination with the proctoscope, though visual inspection should not be neglected.

When cancer of the colon is suspected, a roentgenologic examination should be made, preferably with a barium enema. If the growth is in the rectum and can be reached with the finger, there is no occasion for a roentgenologic examination, which in the colon, however, is important. If the barium is given through the mouth, there may be an accumulation on the oral side of the cancer which will produce obstruction; whereas this contingency is avoided by using a barium enema. The discovery of a mass along the region of the colon and the passage of blood in the bowel movement should always receive serious consideration, especially when the patient is in the "tropic of cancer". The Wassermann reaction should be obtained, because not infrequently a gumma appears in the sigmoid

and upper rectum. It is, of course, possible to have cancer in the presence of syphilis, but with a large mass in the sigmoid and a four-plus Wassermann, there may logically be the presumption of a syphilitic gumma. If the growth can be seen through a proctoscope and there is doubt about its character, a small margin of it may be snipped off with scissors or, better still, with the electric cautery, and examined by frozen section. The gumma of syphilis is more likely to be massive and infiltrating, with the patient in otherwise fairly

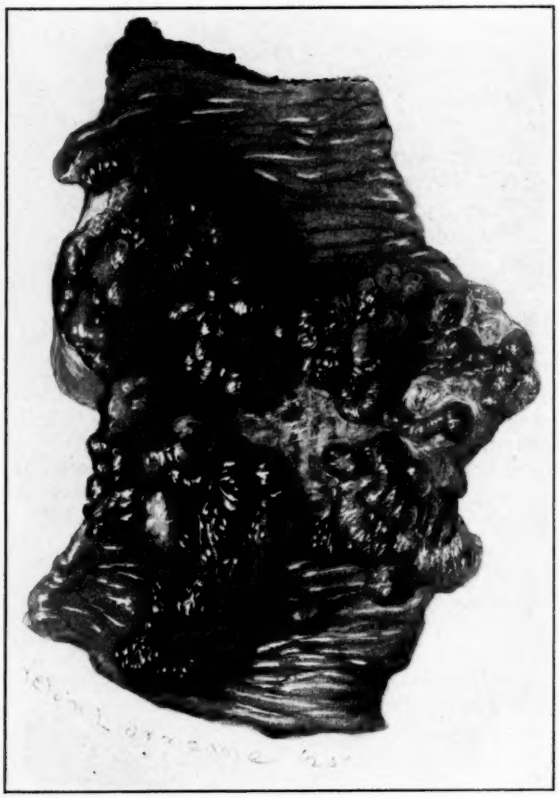

Fig. 2.—Drawing of carcinoma of sigmoid removed from Mr. C. A. McG., aged 50. The family history was positive for cancer. The symptoms began nine months before admission to hospital, with nausea, loss of appetite and loose stools. There was no noticeable loss of weight. The operation, on July 11, 1925, was resection of the terminal sigmoid with end-to-end union. When last heard from, one year and nine months after operation, he was in good health with no recurrence of the cancer.

good condition,—whereas with an extensive cancerous growth the patient's constitution would usually be more affected.

Cancers of the colon, particularly of the cecum and right colon, seem prone to cause a marked anemia even when there is no bleeding.

These features serve to make a correct diagnosis in the majority of cases, though there are special cases that are even still more puzzling, particularly when the growth is out of reach of the proctoscope or the sigmoidoscope.

Having determined the diagnosis, the only treatment that offers a prospect of cure is operation. To be sure, X-ray and radium are very helpful in the treatment, and often cause a marked recession of the growth and render an apparently inoperable cancer of the sigmoid or rectum operable. These agencies should by no means be neglected, but on the other hand it is unwise to trust to radium or X-ray alone in a cancer of the colon or rectum that can be removed by operation with a reasonable prospect of cure. I have had two cases of cancer of the rectum in which the beneficial result of radiologic treatment has been manifest. In one (Mrs. F. M.), the patient had had cancer for three years before coming to operation for obstruction of the bowel. There had been masses palpable through the thin abdominal wall that seemed to be metastases. She was treated intensively by X-ray by Dr. Fred Hodges for about one year before she came to me, but eventually obstruction occurred. On September 29, 1924, I operated upon her for obstruction and found no evidence of the masses that were previously felt. The cancerous growth was limited to the rectum, although the symptoms had been present for three years. Evidently the roentgenologic treatment had caused the metastases to disappear. A radical operation was done, making an artificial anus in the colon and extirpating the rectum. The patient was comfortable for about one year, but eventually died from recurrence.

Another case, (Mr. O. E. E.), was operated upon at a large Northern hospital in July, 1924. The cancer of the rectum was extensive and appeared inoperable. An artificial anus was made in the left side, and radium emanations were implanted into the growth in the rectum. Three and a half months later the patient came to me and I operated, removing the rectum from below. The growth had evidently receded because of the implantations of the radium. Part of the prostate and most of the seminal vesicles were removed in an extensive extirpation. This was

about three years ago, and at present the patient is free from recurrence and doing his daily work. Such a case could not have been operated upon without the previous radiologic treatment.

Fig. 3.—Drawing of carcinoma of rectum removed from Mr. J. D., age 60. Family history was negative for cancer. Thirty years ago patient had had a fistula-in-ano which was operated upon. Three years ago an ulcer appeared in the rectum, for which he was treated. The size increased. He had been given radiologic treatment. There was intense pain, and a discharge of small amount of blood. The growth in the rectum and around the anus was extensive. He was operated upon by the combined method on February 5, 1927, and the operation was followed by transfusion of blood. Four days after operation he became unconscious with very rapid pulse and symptoms somewhat resembling meningitis, and died two days later. Necropsy showed no infection in the superficial abdominal wound and no peritonitis, but a deep abscess and foul pus in the depth of the abdominal wound in the preperitoneal tissue.

On the other hand there are a few cases where radium does not benefit and where the discomfort from its intense action is very marked.

Cancer of the colon does not metastasize so quickly as cancer of the stomach, and consequently operation may be done with much more hope of cure, even in fairly advanced cases. This is illustrated by a patient (Mrs. S.), who had noticed a palpable mass which gave symptoms for about a year before she consulted me. It must have been present for some time before this. On operation the transverse colon, which contained a cancer, was excised. She made a satisfactory recovery, and

when last heard from, two years after operation, was free from recurrence.

The operation to be done depends to some extent upon the location of the cancer and also upon the type of the growth and of the individual. A very cellular, rapidly-growing carcinoma is not often found within the colon and rectum, but when it does occur, recurrence after any operation would be highly probable.

In excision the cecum or ascending colon should be thoroughly mobilized by incising the outer layer of its mesentery, so rendering easy access to the vessels of the mesentery. Implantation of the stump of the ileum into the stump of the remaining part of the colon is a satisfactory procedure. Often insertion of a small catheter in an oblique enterostomy about four or five inches from the anastomosis promotes comfort and adds to the safety.

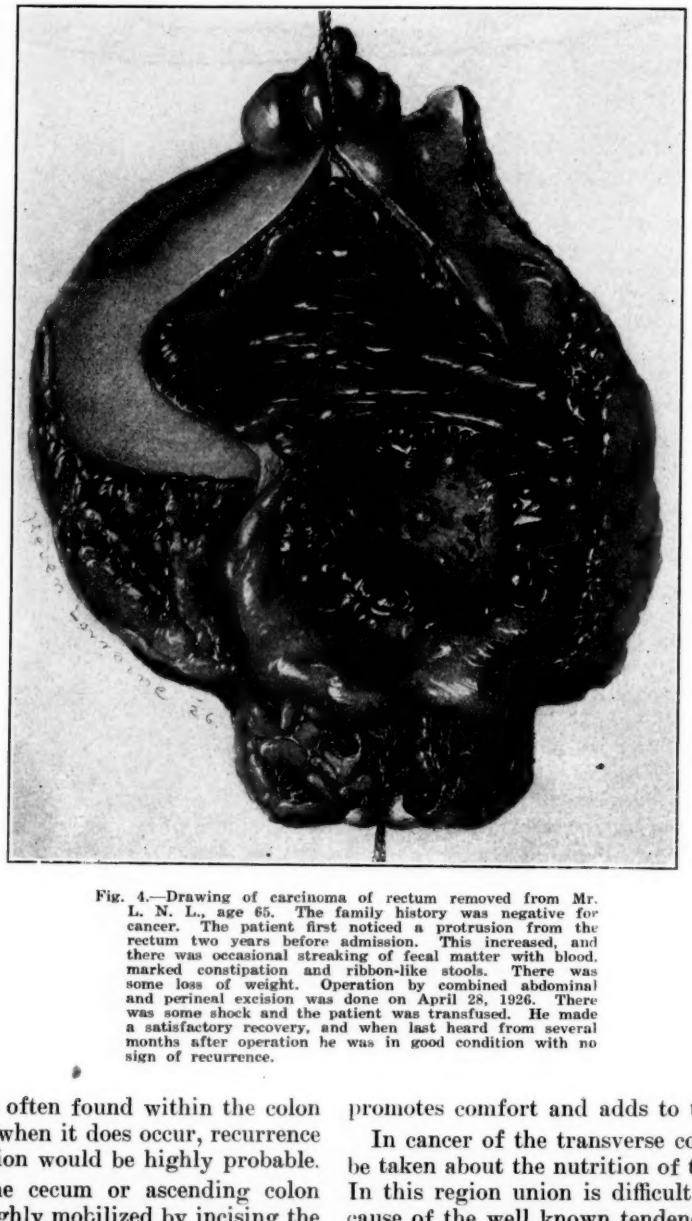

Fig. 4.—Drawing of carcinoma of rectum removed from Mr. L. N. L., age 65. The family history was negative for cancer. The patient first noticed a protrusion from the rectum two years before admission. This increased, and there was occasional streaking of fecal matter with blood, marked constipation and ribbon-like stools. There was some loss of weight. Operation by combined abdominal and perineal excision was done on April 28, 1926. There was some shock and the patient was transfused. He made a satisfactory recovery, and when last heard from several months after operation he was in good condition with no sign of recurrence.

In cancer of the transverse colon, care must be taken about the nutrition of the bowel wall. In this region union is difficult to obtain, because of the well known tendency of the margins of the anastomosed segments opposite the

mesentery to undergo necrosis. When either an end-to-end or a side-to-side method is used, the technic of Kerr should be followed as far as possible so as to prevent infection. Here the bowel is clamped at the proposed site of resection and divided with the electric cautery. A basting stitch buries each stump, and they are then brought together and sutured. After the suturing, the basting stitches are removed. When there is much doubt about the nutrition of the involved bowel, or particularly if the patient is fat, it would be best to close the stumps by tying the two ends of each basting stitch together, folding in the stumps still further by another suture, and then do a lateral anastomosis.

In resecting a cancer of the sigmoid, the end-to-end method according to the technic of Kerr can be used provided there is not too much fat. If fat is abundant a lateral anastomosis should be employed.

In cancer of the rectum, except in the mildest tyes, I have abandoned any type of operation except radical extirpation. Here there is somewhat more access to the lymphatics than in cancer of the rest of the large intestine, and when there is a recurrence after an incomplete operation the condition is usually hopeless. Then, too, an operation in which the sphincteric apparatus is permanently injured results in even more annoyance to the patient if the natural site of the anus is left than if a satisfactory artificial abdominal colostomy is done.

After opening the abdomen a little to the left of the midline, the liver and all the contents of the abdomen are explored with the hand. If the liver appears to have nodules or if the metastases in the lymph nodes are extensive, no operation is done unless there are obstructive symptoms, when a colostomy is performed. If the growth has infiltrated well into the base of the bladder and is fixed, it is of course unwise to attempt any radical procedure but radiologic treatment may help, as has been mentioned. If it proves to be operable, the outer layer of the mesentery of the sigmoid is incised and the incision is carried around the rectum toward the base of the bladder in the male or toward the uterus in the female. The inferior mesenteric artery is doubly clamped and divided. The tissues are stripped up, beginning behind and going down toward the coccyx, keeping close to the hollow of the sacrum. The bowel is divided and the stumps are closed according to the technic of Kerr. The upper stump is brought out through a short incision about two inches to the left of the main incision and is fastened to the fascia and skin with a few interrupted sutures of catgut or linen. It is left closed for several days. The lower end is shoved into the pelvis and the peritoneum is sutured over it. The abdominal wound is closed. The patient is placed in the dorsal position and the bowel is excised from below, after closing the anus with a purse-string suture. All of this is done at one sitting. In these days when intravenous injections of glucose in Ringer's solution can be carried out during the operation, shock can usually be avoided; and if necessary transfusion of blood can be done later. With methods for preventing shock there seems to be less excuse for making a two-stage operation, which is not only trying upon the patient but may permit infection and spread of the cancerous growth.

This operation has in my hands been quite satisfactory. The patients soon learn to control the artificial anus with but little discomfort.

A TABLOID DIP INTO HISTORY.*

By FRANK HANCOCK, M. D., Norfolk, Va.

"That history maketh a young man to be old without either wrinkles or grey hairs; privileging him with the experience of age without either the infirmities or inconveniences thereof. Yea, it not only maketh things past present, but enableth one to make a rational conjecture of things to come. For this world affordeth no new accidents, but in the same sense wherein we call it a new moon, which is the old one in another shape; and yet no other than that hath been formerly. Old actions return again, furbished over with some new and different circumstances." (Fuller).

It is interesting, if not singular, as the collective studies of historians, archæologists and philologists have revealed that the myths, superstitions, laws, folkways, of all primitive people were essentially the same, Scandinavian and Polynesian, Celtic, or Roman.

Perhaps it was inevitable considering the joint origin, and the further fact that these tribes only separated after they had acquired a commonality of ideas.

Specialization and culture came afterward,

*Read before the Norfolk County Medical Society, at Norfolk, Va.

resulting in different races, customs and languages. Primitive man did not differ materially from pre-historic man, a savage sunk in animalism. The natural was to him the supernatural; so he worshipped trees, stars, winds and rivers, dogs, apes and oxen. He faced the wild animal world with his arrow heads, which were exactly the same shape wherever found,—in the river depths of Palestine, Egypt, Siberia, England or Alaska.

But disease baffled him. He thought it an evil spirit and, as such, was to be cajoled, placated by burnt offerings, and sacrifices.

The germ of that idea is with us still. We propitiate offended diety and appeal to kindly spirits to intercede for us in Heaven.

Later this primitive man believed that his human enemy possessed supernatural powers, and that he must ward these off with appropriate spells and sorcery similar to those employed by his enemy.

Nightmares, with their terrifying phantasms led him to believe in the existence of a spirit world of animals, and men, apart from his daily life, of a soul separate from his body. Some of these spirits were offended and sought to injure him.

Always there have been certain keen intelligences who have benefited by these superstitions; hence, the witch doctor and fetish workers practicing magical therapeusis, empirics, and suggestion.

This early man's knowledge was limited, but not contemptible. A number of our important remedies date back to these times. In his medicine pouch he carried talons of beasts of prey, tarsal bones, snail's shells, a drum and rattle to make a bewildering noise. He also carried in these aboriginal days, purgatives, emetics and vermifuges. They did more. Certain tribes, the Ashantis, for instance, practiced inoculation against small-pox, rubbing the contents of a pustule into a skin abrasion. This was likewise done by the Hindus, Chinese and Persians. They cupped, blood-let, and trephined. There, with their stone implements, the Hebrews in the desert circumcised their children.

These primitive people transfixed the edges of wounds with thorns, and drained abscesses with bamboo—ten, twenty, thirty thousand years ago. Certain ants were induced to seize both sides of a wound with their sharp head nippers, in Brazil. Their bodies were then cut away; one ant after another being used in this way until the wound was closed. Was such ingenuity a thing to be ashamed of, or to be laughed at as crude or crass, or as done by mountebanks?

The hieratic writings of the Egyptian Papyrus—the Ebers-papyrus—revealed an extensive materia medica,—opium, coca, cinchona, eucalyptus, sarsaparilla, acacia, capaiba, guaiac, galup, podophyllin. They also used powdered insects, snakes and worms, as therapeutic resources.

Our own Indians treated rheumatism with arbutus, gave lobelia for colds, used golden seal and wild sage tea. They treated scurvy with fresh infusions of the barks and leaves of trees.

Ritual emesis and catharsis were used by the North American Indians just as they were by the Babylonians.

Surgery remained essentially primitive up to the time of anesthesia and antiseptics. Our ancestors used fish teeth, or sharpened flints, to let blood or open abscesses.

Trephining goes back into pre-historic times. It appears to have been about the first operation ever done by man upon man. Headaches, mental disturbances and trauma were treated in this way.

Cupping was done by means of animal's horns. It is thought that the hemorrhage from wounds, and the periodic recurrence of menstruation, suggested to them the advantages of blood letting in disease, and hence the practice.

The ancient Hindus performed almost every major operation except the ligation of arteries, operations that were preceded by intoxicants and narcotics.

The use of a soporific potion as a substitute for anesthesia goes back to remote antiquity—poppy, Indian hemp, mandragora. Rachel sought the latter for Leah, perhaps to ease the pangs of child-birth. In the fourteenth century a mixture of these ingredients was prepared for surgical anesthesia by Hugh, of Lucca, and his son, Theoderic.

Alcohol should be added to this list given us by the Arabians.

Mankind came marching into history, providing himself with an artificial paradise, through narcotics and intoxicants (alcohol, opium, and hashish). He also knew of tea, coffee and tobacco.

Mesopotamia was the nurse, if not the cradle

of all culture. The seeds of it were sown by that great race, the Sumerians, some sixty centuries ago. They invented cuneiform writing. They were conquered by the Semitic Babylonians and Assyrians, who further developed morals and learning. Then the torch of civilization passed to the Indo-Germans.

Quick silver was used by these Indians for syphilis, but mostly after the Mohammedan era. It was called "The King of Metals."

The earliest known pictures of surgical operations were discovered by Max Muller, near Memphis, on the door-post of a tomb. The Egyptians did not open the body, but these pictures gave clear representations of circumcision, operations on the neck, etc.

The first physician to arise out of the mists of antiquity, Imhotep, 4500 B. C., was worshipped at Memphis as a God.

Among the contributions of the Egyptians to medicine were simple clothes and cleanly habits,—with which their climate had something to do.

In this fertile spot neolithic man first raised himself above his kindred races of the Mediterranean basin. By the accidental discovery of copper, Egypt "forged the instruments that pulled civilization out of the slough of the Stone Age." Many of man's most distinctive and highly cherished beliefs have their origin here. Records preserved in stone show the picture of man's search after justice and the recognition of the rights of the individual. It was there that "The faith that looks through death" was developed. But it was not here that religion and medicine became dissociated.

Osteo-arthritis was the most prevalent of diseases among the Egyptians, as pictures show. Evidences of tuberculosis, rickets and syphilis were lacking.

In the contemporary Mesopotamian civilization, science reached a higher level than in the valley of the Nile. Early observers were impressed with the size, importance, and richness of the blood supply of the liver. They spoke of the liver as we do of the heart, believed it to be the seat of life, and of the soul.

The influence of the heavenly planets upon man's destiny was the contribution to medicine of the Assyrians and Babylonians,—that the stars fought in their courses for and against him. Also, they and the Hebrews believed in divination. The elders of Moab and Media came to Baalman with the rewards of divination in their hands. Joseph's cup of divination was found in Benjaman's sack. The King of Babylon stood at the parting of the ways and looked at the liver and prognosed the results of a forth-coming war. The liver was the mirror in which God's mind was reflected in those times. It was the sole organ of divination for hundreds of years.

Hepatoscopy was also practiced by the Etruscans, Greeks and Romans, but it early degenerated into meaninglessness.

It does not appear from the Bible that the Hebrews were impressed with astrology, nor the Greeks particularly, as far as medicine was concerned. However, we have some words of astral significance from the Greeks—disaster, for instance.

The Hammurabi code—2000 B. C.—was supposed to have been received from the Sun-God by the King (as Moses received the law from the God of the Hebrews).

This extraordinary document is a black diorite block eight (8) feet in length, with 2,540 lines of writing, of which 1,114 remain surmounted by the figure of a king receiving the law from their God.

Greek Medicine.

Greek medicine appears on the horizon of history, carrying what there was of service and of science from the older Mesopotamian and Egyptian. The remains of Oriental literature were linked with the matchless collection of writings of Hippocrates. In it is the beauty and entire freedom of Hellenic thought.

That was the germ of all future development, foreshadowing of future tendencies. Thus oriental thought reached its apotheosis in Greek philosophy and art.

It was a part of those mighty startling influences that led in to the Golden Age of Greek culture—such prodigality of intellect as the world has never seen. The Christians in their too great zeal later erected a Bastile where all thought was confined. In this great era of the Greeks, science achieved its independence from religion, tradition and dogma.

No hierarchy had yet arisen to rule and govern the spiritual and thinking life of mankind as life was then lived by the Ionic and Doric Greeks.

There was some hegemony upon the part of the Delphic oracle in the Hellenic world, but it was not enough to stifle science. The Persian King hoped to secure from this Delphic priesthood the political service, spiritual authority

rendered him in the conquered countries of Egypt and Judea, but Plataea and Salamis prevented this, and Hellas was not submerged in religious dogmatism. The Greeks secured much knowledge from the older eastern natives of their drugs and methods. This raw material of experience was elaborated and individualized by them.

Greek medicine then rose above mere formal dogma, and empiricism creating a synthetic organism of medical science.

It was at Crotona that Pythogoras founded a school whose influence has come down the centuries stimulating knowledge and accelerating thought. One of the distinguished members of this Crotonian school, Alcmoean, first traced the spinal nerves to the brain and recognized that organ as the seat of the mind.

No study of the Greek school of medicine could be competent that did not include Empedocles, who introduced the theory of the four elements, fire, air, earth and water.

Upon this later was engrafted the doctrine of the humors which dominated medicine from the days of Hippocrates almost to our own. Empedocles foreshadowed Darwin's theory of evolution in at least a fantastic representation of "The Survival of the Fittest."

Magical powers were ascribed to Empedocles. He recalled Pantheia to life after her trance of 30 days. Democritos pre-visioned the automic theory. These were wild speculations, it is true, but based upon an amazing intuition.

At this time, six hundred (600) years B. C., the Greeks had a well-defined public health service. Democedes, whose remarkable story as told by Herodotus, was perhaps the first medical man to receive a regular salary from the City of Athens for public work.

Asklepios, patron saint of medicine, was for more than a 1,000 years "consoler and healer of men." It is his figure with the serpents that appears on all our seals and charters. The natural dread and awe of humans for the snake made it a symbol of supernatural power early in man's career. At one time three or four hundred temples were dedicated to Asklepios.

The first regularly organized physicians were the Asclepiades, who rose to power and dignity in the century before Hippocrates. They had a strict organization, expressing itself in certain ordinances and formalities.

Medical ethics began there, on the assumption that the Asclepiades were originally a band of brothers claiming descent from the divine father of medicine. They guarded their art as a family inheritance. Under certain circumstances strangers were admitted to this spiritual union of physicians, where they learned the venerable traditions, the purity of transmitted teachings.

They carefully wrote histories of patients. Charlatans worried them, especially a group called gymnasts whose practices were not dissimilar from the practices of certain sects practicing today.

Pythagoras was the greatest of the philosophers who exercised influence upon medicine. Greek medical literature may be said to have started with him.

I wish to speak of Hippocrates and his writings. He was born in Cos, 460 B. C., and died about 375 B. C. "Admired by all, understood by few, imitated by many, equalled by none, he will remain the master of medicine for all time." He did not believe with the priests, practicing medicine at that time, that disease was of celestial origin. "No god ever befouled a human body," he said. Through all of his writings a humanism runs. He believed with Prodicus that "that which benefits human life is God." Some of his hypotheses were fantastic, based as they were on the dissection of animals.

Plato held Hippocrates in high esteem, and appreciated his idealized ethics, and his far-seeing views.

His writings were edited in the third century B. C., and collectively they were called Corpus Hippocraticum. This was done by Alexandrian scholars under orders of the book-loving Ptolemy.

Some of these writings are of course apocryphal, in the sense that they were not all written by him. Whatever he wrote, there is no question of his historicity, no doubt that he diverted medical investigation from devious speculation to the straight road of unbiassed observation, and gave to his profession a sense of dignity and independence it had never had before.

Plato and Zenophen gave different impressions of Socrates, just as did the successors of Hippocrates, but they were all imbued with his genius.

His conception of the medical vocation, and his method of medical thought were as true then as now. We cannot narrowly define the

knowledge and art of his school, but the monumental figure of this great man will remain forever upon the heights of medical thought.

The fundamental differences between medicine as practiced by Hippocrates and those before his day is impressively plain and makes him an obviously immortal figure, who will survive the vicissitudes of time.

He found, upon his coming, a guild of Asclepiades. He left his profession free of all priestly entanglements and transcendentalism.

He distinguished essentials from accessories. "He not only looked but he saw. His tendency was ideal, but his perception was real."

The first great medical school of antiquity was the Alexandrian school about 300 B. C. There were laboratories, clinics, libraries. Here the study of the structure of the human body marked its full development, till then barred everywhere by religious bodies.

The Ptolomies gave full permission for the dissection of the human body, and perhaps vivisection.

The two great members of this school were Herophilus, and Erasistratus. Herophilus gave us the Calamus Scriptorius and the duodenum. Erasistratus almost described the circulation. He broke definitely with humeral pathology.

They described the valves of the heart; recognized the significance of nerves, which had been confounded with tendons, described the great varieties, sensory and motor.

Galen, the greatest name after Hippocrates, was born in Pergamon 130 A. D., and died 201 A. D. Observer, experimenter, philosopher, he practiced psycho-analysis. Called to see a great lady suffering with intractable insomnia, he quizzed her closely and decided that her malady was due to her love for a certain dancer, Palydes, because he discovered that her pulse quickened when this dancer's name was mentioned. Galen could only dissect apes and pigs. Times had changed since the days of Herophilus. The broad minded Ptolomies had been succeeded by the promiscuously religious.

He was within an ace of discovering the circulation of the blood. It is difficult to understand how he missed it.

He showed that the arteries contained blood and not air, as had been taught by Erasistratus, and Praxagoras. He knew that the heart valves determined the direction of the blood that entered and left the organ, but he failed to understand that the heart and not the liver, was the pump. He spoke of veins as "a conduit full of blood with a multitude of canals, large and small, running from it, distributing blood to all parts of the body." That lacked very little of Harvey's later description of the circulation.

He had a commanding talent; was a master builder in the realm of thought. Still he did not have Hippocrates' originality or freedom of thought.

Galen compared these blood conduits with irrigating canals and gardens. He went beyond Aristotle. He knew that a function of the blood was to maintain heat and that the smoky matter derived from this combustion was discharged by expiration.

Galen demonstrated the function of the laryngeal nerves, motor and sensory functions of the spinal nerve roots. He had great faith in drugs and collected plants from all parts of the known world.

For fifteen centuries he dominated medical thought as Aristotle did in the schools. He was the medical pope.

Leonardo da Vinci also, as shown in his illustrated anatomy, the first of such illustrations, was just short of a full conception of the circulation. Certainly his knowledge of muscles surpassed that of any of the anatomists up to the time of Vesalius.

Medieval Medicine—or the Era of Coma.

As Rome rose to authority, medicine languished for some 600 years. It was only the immigrant Greek physicians, attracted by the growing wealth of Rome, that rescued it from hopeless theurgy. At this time the profession was pitifully inadequate. It returned to its liaison with religion, from which Hippocrates had so long before delivered it.

Desolation had come to medicine as to all civilization. The threads were broken that had connected it with the glory of Greece and Rome.

All that splendid legacy bequeathed to us by the masters had departed. Nothing remained of Athens and Alexandria. Man became again encysted in ignorance and blind superstition "in a muddy vesture of decay." The stream of scientific medicine was lost in the morass of these years. The barbarians shattered the Roman empire to its foundations in the fifth century A. D. In the sixth century a great

plague further demoralized the remains of this once great people.

There is no question, as remarked by Osler, that the philosophy of the Christian religion contributed greatly to the decline of scientific investigation. St. Paul counted "all things dung but to win Christ."

"In seeking a heavenly home mankind lost his bearings upon earth." Only a mystic could understand this situation with full sympathy. Christianity did bring new motives, new interest and new values, into life, but science was not among them. Tertillian said, "Investigation since the Gospel is no longer necessary."

Jerome wrote, "Does you skin roughen without a bath? Who is once washed in the blood of Christ needs not wash again."

Of course, no criticism or reflection is intended here upon the Founder of Christianity. For him are only our love and our tears.

However, the literary matter of the pagan past did not completely fade from the consciousness of mankind. The course of the river of medicine was tortuous and meandering, but it was never completely checked.

There was the famous medical school at Salernum, near Naples.

In Byzantium, from the third century to the fall of Constantinople, there was a continuous effort by medical men to prevent a total eclipse of their profession. Oribisirus, friend of the Emperor Julian, was the most notable of these Byzantines.

He was born at Purgamon, as was Galen, and was so close a follower of his townsman that he was called "Galen's ape."

These Arabians were appreciative of all that was best of the Greco-Roman civilization, particularly the science of it. They arduously cultivated medicine.

Razes and Avicenna were their great contributions to the profession. The latter had perhaps one of the finest intelligences ever vouchsafed to man. He took all knowledge for his province. He was fond of wine and women and came to his end in some dissipation in his 58th year.

Avicenna wrote voluminously, translating the work of Galen and Hippocrates into Arabic. All of his philosophy could not make him moral nor all his physic teach him to preserve his health. His works have been lost. Arabic medicine was then essentially Greek. Their greatest advances were in the domain of chemistry. The Arabs had well organized hospitals, hospitals that were at once the glory of their civilization. Their science, which exceeded anything in Europe, became transmitted to this occidental world, through the Crusaders.

Mundinus was the first modern student of anatomy. He was a product of the universities that flourished in the thirteenth century, particularly the students' guild at Bologna. These guilds were the preludes to the universities of that century, which sought to meet the educational needs of the age.

In the year 1319 there is the record of a legal procedure against medical students for body snatching, the first record for this gruesome practice. Mundinus' anatomy was a text-book for 200 years.

The quaint illustration shows us the medieval method of teaching anatomy,—the lecturer sitting on a chair reading from Galen, while a barber surgeon opens the cavities of the body.

Arnold, of Villinova, wrote prodigiously on medical subjects, was in constant trouble with the church, and was finally condemned as heretical.

Peter, of Abaro, was the first of a long line of distinguished physicians connected with the great school of Padua. He sought to reconcile philosophy and medicine, came into conflict with the church, was several times before the Inquisition, and escaped the stake only by a timely death.

Pope John XXI was interested in medicine, wrote a number of treatises, and referred in one to "iliac passion," presumably appendicitis.

Roger Bacon, born out of time, was the first man since the Greeks, to understand the importance of experimental science. He had a keen appreciation of what it meant to human knowledge. He was one of the first to point the way to original research, as opposed to the acceptance of authority. Any student of history will acknowledge the debt we owe to this man, because it is overwhelmingly evident that acceptance of authority upon our part was the particular languorous thing that prevented our advancing, as we would have, had we been earlier stirred by Roger Bacon's ferment.

Astrology, an aggressive culture, was practiced universally in these middle ages,—Babylonia, Greece and the Roman Empire,—countenanced by the courts, taught at the universities. Roger Bacon himself believed in the

influence of planets, stars and comets on generation, disease, and death.

Medicine in the Middle Ages represents a restatement from century to century of the facts and theories of the Greeks, modified here and there by Arabian practice. The schools were still bound in slavish submission to Galen and Hippocrates. There was no advance in our knowledge of the functions and structures of the human body. The Arabians lit a brilliant torch (Osler) from Grecian lamps and from the eighth to the eleventh centuries the profession reached a dignity and importance to which it is hard to find a parallel in history.

In the fifteenth, to the sixteenth and seventeenth centuries there was a general renaissance of the world of thought. Theology had been the queen of all the sciences. Learning was now to be the guide to the conduct of life.

Medicine, reflecting this period as it had all other periods, joined in the revolt against medievalism.

Authority was shattered, and the foundation for the study of the functions of the human body was laid. With these advances are associated the names of Paracelsus, Vesalius and Harvey. The first of these made war upon the dogmatism of the schools, and encouraged the study of practical chemistry. There has probably never been a physician subject to such unmeasured abuse and villification. His body, said Fuller, was a sea where the tide of drunkenness ebbed and flowed. He was a mystic, something of a charlatan, but he stood out at all times for independent study and the right of private judgment. He discovered zinc, the various compounds of mercury, and flowers of sulphur. Also, he introduced tincture of opium, having probably learned of it in the East.

Vesalius, of Brussels, grasped as no modern before him had done, the capital truth that, to know the human body, one must know its parts, its fabric,—one of the most achieving minds of the human race.

The Alexandrians created human anatomy, but he for the first time in history explained the entire structure of the human body. His great anatomical work was the "Fabrica"—fabric of the human body. There is described anatomy as we know it. The world has never seen what this manuscript contained since the great Pergamenian had sent his Manual of Anatomy among his friends. The Fabrica appeared in 1543.

However, Vesalius had no idea of a general circulation beyond what Galen had taught. (It was Servitus who described the lesser circulation).

The publication of the Fabrica shook the medical world to its foundations. He had dared to differ with Galen, Prince of Physicians.

He is said to have been brought before the Inquisition, but was saved by the intercession of Charles V, whose physician he was. Condemned to visit the Holy Land, he died of a fever in 1564.

Vesalius had made the school at Padua the anatomical center of Europe. He was succeeded there by Fallopius, who in turn was followed by Fabricius, who demonstrated the valves in the veins.

Harvey had seen and assisted in these demonstrations at Padua about 1600. *He afterwards said it was the position of the valves of these veins that induced him to think of the circulation.*

Trained in this great school, William Harvey returned to England and soon thereafter laid down in clear and unequivocal terms the circulation of the blood. It was the foundation of physiology.

The old notion had been that the heart in its motion attracted blood into the ventricles. He demonstrated by experiments, to the contrary, that the ventricular contractions expelled blood, and only received it during its repose. He then demonstrated that the diastole of the arteries corresponded with the systole of the ventricles and that the arterial pulse followed the force, frequency, and rhythm, of the ventricle, and is dependent upon it.

It had not been known before that the pulsation in the arteries was nothing else than the impulse of the blood within them.

He knew that the auricles were the first to move, and the last to die. Hence, for the first time, then, it was stated that the heart was the organ for the propulsion of blood, the very thing Galen could not see.

Harvey did not know how the arteries and veins communicated with each other. Galen spoke of anastomosis. Harvey preferred the idea of filtration.

Galen, Aristotle, and others knew that the blood moved.

Harvey lectured to students at St. Bartholomew's Hospital on the circulation fifteen years before the work was published—De Motu Cordes, 1628.

He met with a storm of opposition. "Circulator" was the term opprobriously applied to him. Charles I rallied to his support and made him Court Physician, as other Kings and Emperors had done in the past for great doctors who were being persecuted.

Other important discoveries followed shortly after this:—The pancreatic duct, Wharton's duct, antrum of Highmore, Glisson's capsule, circle of Willis, Haversian canals, and Cowper's glands. Brunner discovered the duodenal glands; de Graaf the Graafian follicles; Peyer described the lymphoid follicles of the small intestines; Stenson the parotid duct.

Swammerdam discerned the red blood corpuscles. He established the medico-legal fact that foetal lungs will float after respiration.

Then came Leeuwenhoek, maker of microscopes, and founder of microscopy. He had a collection of 247 microscopes and 419 lenses which he ground himself. He was the first to describe spermatozoa, the structure of the crystalline lens, and the striped character of voluntary muscle. He saw micro-organisms in the teeth for the first time, and demonstrated what Malpighi had already seen, the capillary anastomosis between veins and arteries.

Thus was supplied the missing link in Harvey's discovery of the circulation.

Malpighi originated histology. His work upon the liver, spleen, and kidney was done with patient fidelity, and his name is preserved in the structures of those organs.

Ambrose Pare (1510-1590) made amputation what it is today by his reintroduction of the ligature, the use of which had been in abeyance since the time of Celsus—25 B. C. to 50 A. D. He was the original asepsist, as Garrison remarks. He first suggested syphilis as the cause of aneurism, and made podalic version a practicable procedure. He is said to have been garrulous and gossipy and to have "had the vanity of self-reference, which accompanies great as well as small reputations."

Thomas Willis first described the hexagonal network of arteries at the base of the brain, which bears his name. He gave the first account of epidemic typhoid fever, and described and named puerperal fever.

This was a great era, this seventeenth century. It was the age of Shakespeare, and Milton, of Vilasquey, and Rembrandt, Bock, Moliere and Newton, Bacon and Spinoza.

With better legal regulations and restrictions, the social position of the physician improved. He arose to some dignity. But the surgeon was still under the ban. In the army he still shaved the officers, and was generally classed with barbers, bath-keepers, executioners and mountebanks. This was in England. In France, the surgeon enjoyed some prestige owing to the fact that Felix, surgeon to Louis IV, relieved that monarch of a fistula-in-ano by operation.

The gradual rise of the surgeons from their lowly plain to the seats of the mighty is something that these erudite ones can take up later. It is an interesting story.

Grocers were the original druggists and continued to dispense drugs even after James I in 1606 incorporated the druggists.

These druggists finally shedded their grocer associates, as the surgeons had done the barbers. Then and there began the age-long controversy between physicians and druggists as to the dispensing of drugs by the latter.

Medical Arts Building.

THEN AND NOW.*

By ZEP V. SHERRILL, M. D., Marion, Va.

At the very beginning of this imperfect paper, which would have been an utter impossibility if I had not quoted freely from different authors, permit me to say that I am greatly embarrassed when I attempt to express my high appreciation of the honor you have so kindly and generously bestowed upon me. You have permitted me to preside over this very worthy group of medical men, and passed by my many errors in silence.

In all candor, no better medical society exists today in the State of Virginia, or elsewhere, than the Southwestern Virginia Medical Society. Whether I am President of this Society out of respect to age, or from being among the first in its organization, or from whatever cause, my appreciation is none the less.

In casting about for a subject for an address, or paper, for this occasion, I have, indeed, been "up a tree," as it were. I finally concluded to

*Read before the Southwestern Virginia Medical Society, at Bristol, Va., September 22-23, 1927.

leave the name until the operation had been performed, and if it is still-born no name will be expected.

Reminiscence is said to be an evidence of age, and if, therefore, I should refer to medical matters of the past, you will naturally and justly conclude that I belong to the class of the "Old School Physician."

I began in a small way to give out powders and home-made pills in the summer of 1887, two years after the birth of our State Board of Medical Examiners. In order to do this, without interference, I located temporarily in Tennessee, where no such restrictions at that time existed. Transportation forty years ago was conducted by horse-drawn vehicles, or on horseback; the latter was more practical and more economical on account of the bad roads. A rubber tired buggy was considered an expensive luxury, and especially if drawn by a span of horses; the latter method of travel was seldom employed except by the city physician. Occasionally in Richmond one could see the two-horse carriage with the colored driver in livery, and the dignified old doctor, dressed in the conventional black broadcloth suit with high top silk hat, seated in the closed apartment to the rear of the driver.

Formerly—40 years ago—a messenger or runner, was sent for the doctor,—no telephones were in common use, especially in the smaller towns or the country districts. The messenger usually came on horse-back and remained with the doctor until he was ready to return with him to visit the patient. Not infrequently the doctor would remain with his patient overnight, going home the next day, and sometimes, if the patient were very ill, would stay with him several days. Since there were no graduate nurses, the care of the patient depended upon the goodness and kindness of the neighbors, or relatives, and often the doctor played the role of nurse. Several years later the trained nurse came into her own, and her services were, indeed, a benefaction and a blessing to the patient, as well as to the community and to the doctor. The doctor in the olden time was an ever-welcome visitor in the home. He shared with the family the very best they could afford.

At this time (1887) there was not a hospital within the entire boundaries of this Medical Society, including the Clinch Valley Society as well, or within the entire Southwest Virginia—embracing nineteen counties. Thirty-two years ago the old Roanoke Hospital was established, the first hospital in this entire section except the Southwest Virginia State Hospital for the insane, which was established forty years ago at Marion. Patients in need of an operation were transported all the way to Richmond and admitted to the Retreat for the Sick, or the City Home Hospital. St. Luke's Hospital was opened during 1887. The Lynchburg General Hospital has been established since 1885, and the Marshall Lodge Hospital was opened for patients in 1886. Other Virginia cities having hospital facilities 40 years ago were Alexandria—Alexandria Hospital, established 1872; Norfolk—Hospital St. Vincent, established 1856; Norfolk City Home Hospital, established 1820; the Norfolk Protestant Hospital was opened 39 years ago. The Petersburg Hospital was established in 1886. These hospitals constituted all the hospitals in the State of Virginia except those established by the State for the care of the insane, and by the U. S. Army and Navy,—the former at Fort Meyer and Fortress Monroe, and the latter at Norfolk,—the U. S. Marine Hospital and the U. S. Naval.

There are today in the 19 counties of Southwest Virginia, 25 hospitals with a capacity of 1,058 beds, besides the Hospital for the Insane at Marion with 1,000 beds, and the Catawba Sanitarium, at Catawba, with 325 beds, and Mt. Regis, at Salem, with 65 beds. Virginia has today, besides the hospitals referred to in the 19 counties, 52 other hospitals and sanitariums, besides 3 other State Hospitals for the Insane. These 52 hospitals will accommodate 4,076, and the remaining State Hospitals,—Eastern—1,000; Western—1,500; and Central —2,000.

No State provision was made for the care of our tuberculosis patients until 1909, when the Catawba Sanitarium was established; neither was there any private institution prior to this date for their care and segregation. The Blue Ridge Sanitarium was opened for patients only 7 years ago, and Piedmont Sanitarium for colored patients 9 years ago. The State sanitariums for tuberculous patients will accommodate 631 patients, counting the colored at Burkeville (146). Richmond and Danville each have municipal hospitals for their cases of tuberculosis; these accommodate 92 and 35 patients respectively. Little was known of the

prevention of disease; the germ theory was a subject of scorn and derision for the most part. The tuberculous patient lived at home with his family, sleeping and eating with them, and it was not an uncommon occurence for whole families to be wiped out with this dread disease.

It was not until 1894 that diphtheritic antitoxin was manufactured and it was several years after this before its use became anything like general. In the days before diphtheritic antitoxin, it was not unusual for several children in the same family to die from diphtheria during an epidemic. In New York city, in 1921, before the use of toxin-antitoxin, there were more than 15,000 cases of diphtheria; in 1926 there were only 5,793 cases, a reduction of nearly 75 per cent. Up to July 1st, this year, 75,000 children in Virginia had been given *toxin-antitoxin*, more preventive treatment than had been given in any one year prior to this.

Typhoid fever is coming to be a rare disease since the more general use of typhoid vaccine; years ago it wiped out whole families.

Malaria, according to Bass, will be eliminated within another decade or two.

Cholera on American soil is a disease of past years.

Small-pox is an unusual disease at present, and usually of a mild type, on account of the almost universal employment of vaccination.

Research work is in progress. Last year the Dean of the Medical Department of the University of Pennsylvania (a great medical school, the oldest in this country, established in 1765) estimated that $1,000,000 would be utilized for research work alone during the year. The new medical unit soon to be erected at the University of Virginia, to cost one and one-half millions, will indeed be a step forward. The millions for the Medical Department of Duke University will be felt and appreciated by the medical profession of the entire South.

In the early part of the 19th Century there were only three medical schools in the United States, and only two hospitals. There are today in the United States and her possessions 7,194 hospitals with beds for 888,339 patients. There are more than 4,000 laboratories and over 4,000 Roetgen ray departments. (*J. A. M. A.*, March., 1927).

Forty years ago I knew of only one orthopedic surgeon within 350 or 400 miles—he lived in Washington, D. C.; I refer to Dr. A. R. Shands, formerly of Prince Edward Co., Va. Now our great Universities, the great City Hospitals, Free Dispensaries, the special Childrens' Hospitals, and Convalescent Homes have collected, segregated and rehabilitated cripples by the thousands. Only a few years ago orthopedic surgery was confined to the larger cities; now, orthopedics, as a speciality, is practiced throughout the land. Every State in the Union should provide hospitals to help take care of our half million cripples; some of them have not done so. We are indebted to the Scottish Rite Masons, the Shriners, Rotarians, Kiwanians and other organizations for the interest they have manifested in this speciality, and for helping direct our attention and increasing our interest in these unfortunate cases. We have now numbers of good orthopedic surgeons in several parts of our Commonwealth, of whom we are justly proud.

In 1920, Sir William Osler said the average working life of the English-speaking people had doubled in three centuries; most of this gain, however, has been made within the last half century.

The development of Preventive Medicine has been one of the outstanding features during the last 40 years. Dr. A. J. Crowell, speaking of Preventive Medicine, says, "it is the watchword of the hour and offers the profession its greatest opportunity for usefulness." "An individual may discover the cause of disease; but it is by the combined effort of the profession that its ravages may be prevented." "As a result of organization, co-operation and concentration of ideas and effort, the medical profession stands today single and alone among the professions, in that it is the only one whose daily efforts are expended in an endeavor to destroy the very reason for its existence."

Periodic physical examinations are being urged by the physician of today in order that disease may be arrested before it has developed and the human body impaired. Health Boards have been established, hospitals have been constructed and maintained, Public Health nurses employed, and hygiene taught in our public schools at the instigation of the physician. The Public Health Service of our Government has taken a leading part in sanitary education, in its endeavor to combat disease. Large industrial plants employ doctors and nurses for their

employees and have found that it pays in the amount of productive labor. Life Insurance Companies hold health clinics and distribute health literature. A few of them have sanitoriums for the treatment of their policy holders. Not a few individuals retain their physicians to look after their health the year round.

Recently some of our cities have even established Mental Clinics.

Formerly the graduate in medicine was turned loose on the public with little training in the Healing Art, and often wrought havoc with the patient; now they are required to continue their training as Internes. Formerly—40 years ago and less than 40 years—they were graduated within two years of two sessions of five or six months each. At present, and for several years past, modern medical education demands scientific knowledge as a foundation, and all first-class medical colleges require two years of special college work in addition to a complete four-year high school course before admission. The fact is that at present most of our physicians are graduates from first-class literary colleges before they begin the study of medicine. The modern physician is the best educated man found in any of the professions today. About 30 of our States require at least one year internship in a hospital after graduation before the rigid State examinations may be taken, in order to obtain a license to practice his profession—a wise precaution, indeed. The demand for the well trained physician is now much greater than the supply. Many communities are actually without the services of a modern physician and the need is imperative. The financial remuneration received by the physician may be less than many of the vocations, but the extreme satisfaction and the actual opportunity for aiding mankind is a remuneration far greater than money. The physician must be a true student all his life, since medical knowledge is continually advancing. New scientific facts are rapidly being discovered, and the application of these facts are finding their places in the medical world. Many and important changes, therefore, have occurred in medical matters for the betterment of human welfare, but we are in need of further reform. At present the people of these United States are spending every year $320,000,000 for patent medicines, which is perfectly good money thrown away.

Maternal mortality rates in this country are today among the highest in the civilized world; only a slight decrease in these rates has occurred since the beginning of the present century. A comparison shows the United States ranks among those having the highest maternal death rates—as New Zealand and Chile. Countries having less than half of the maternal death rates of the United States are Denmark, Finland, Italy, Japan, the Netherlands, Norway, Sweden and others. Two-fifths of the deaths of this class of patients are due to septicemia, or lack of surgical cleanliness. Fifteen to twenty thousand women die in this country annually directly from the effects of pregnancy, and fifty per cent of the remainder suffer in varying degrees from its effects. Dr. L. A. Calkins, in the *Virginia Medical Monthly*, says 500 mothers and 5,000 babies in Virginia lose their lives each year in the act of parturition. A step forward would be effective supervision of these cases by health officers, and puerpural diseases should be made a reportable disease just as other contagious or infectious diseases. The result of such action in Norway has been a reduction of four-fifths of these cases, and similarly striking results have been obtained in England, Wales and the Netherlands.

Beginning with 1907. Twenty years ago, $3,000 were realized from the sale of Christmas seals distributed by the State and National Government and local Tuberculosis Associations for the prevention and treatment of tuberculosis. In 1925, $4,900,000 were realized from this sale. Deaths from tuberculosis have been reduced since 1907 from 200 per 100,000 population to 90 out of every 100,000—110 per cent reduction. In the past 25 years 1,300,000 more persons would have lost their lives from this disease, had the death rate of the year 1900 prevailed. This is, indeed, encouraging, but there remains a long waiting list of persons affected with tuberculosis for admission to our State institutions for lack of adequate room.

I have referred to some of the statistics of our hospitals already, but allow me to make another reference. The figures give some idea of the tremendous and important place now occupied by hospitals in medical education in this country.

Hospitals are destined to render greater service as they assume their educational function and when they become more fully permeated with the spirit of investigation and research—

and are better equipped and better endowed. Then hospitals will render more efficient service to the public, not only providing care for the sick, but in educating the people of their communities in regard to scientific and attested facts in medicine.

The welfare of future generations will depend upon the health of the adult of today. The report of the Surgeon General of the U. S. Army on defects found in the drafted men shows about one-half of the young adult male population to have physical and mental defects worthy of note, and one-fourth have impairments sufficiently severe to disqualify them for military service. According to this same report, the chief causes of rejection for this service are the results of physical injuries and defects—diseases of the heart, tuberculosis and mental diseases. Our school children are 50 per cent defective; in varying degrees, most of these defects are remedial.

The *Life Extension Institute* also reports "that over 50 per cent of adult males studied by them have moderate to advanced physical impairment, needing not only hygienic guidance but also medical, surgical, or dental treatment." In this group are the large number of so-called "silent diseases," which produce varying and deplorable degrees of disability. At this enlightened period of our existence, at least 15 per cent of the population have serious conditions demanding attention. An important contribution to present-day health work would be the correction of dental and mouth defects, most of which can be corrected in childhood, and the efforts of the medical and dental professions and the co-operation of school authorities, with financial support from the County or State, would be a long stride in the right direction.

Dr. W. F. Draper, Asst. Surgeon General of the Public Health Service, in an address before the American Medical Association at its last meeting, said, "it is my impression that the old family physician knew far more about his families and their members, regarding their physical condition and mental comfort than is the case nowadays. Undoubtedly, an enlightened return to this more intimate relationship would be better for the public and also, I think, for the physician.

"Is there any good reason why the discovery of defects in the children of families in which the physician attends the adult members, should be left to the school medical examination, if there happens to be one? Should not the family physician have detected and treated these in their incipiency? Must their dietary diseases, their hernias, their tuberculosis, their mental maladjustments go unrecognized until the patient himself, or his relatives, or employers, or society in general complains of them? The alarming extent to which defects and diseases go unrecognized until it is too late to accomplish anything more than palliation, is sufficient evidence that somebody has failed. It is easy to blame it on the ignorance or carelessness of the individual (and often this is justly true), but I believe that much of this wastage could fairly be laid at the door of the physician who has neglected abundant opportunities for service, and also for legitimate and compensable medical practice."

GLAUCOMA.*

By WILLIAM THORNWALL DAVIS, M. D., Washington, D. C.

Case 1. White, male; 57 years of age. Seen May 10, 1927.

The patient complained of epiphora left eye, beginning on March 29, 1927. Immediately after this he noticed dimming of vision in this eye accompanied with a feeling of fullness in the globe; occasionally there was a sensation as of a foreign body in the eye. The thought that he might have serious trouble with the eye depressed him very much. The examination was as follows:

V.O.D. 20/40 WS. + 1.75 = 20/30 + 4.

V.O.S. 20/100, no glass improved.

T.O.D. 34; T.O.S. 24; (Schiotz).

Visual form fields normal. Left blind spot slightly enlarged. There was no scotomata. The slit lamp showed cornea, aqueous and lens normal in both eyes. One drop of euphthalmin caused the left pupil to dilate ad maximum. Ophthalmoscopic examination showed the left retina and disc to be edematous and hazy, with engorged retinal veins; a well defined, low grade, neuroretinitis or posterior uveitis. He was placed in hospital for study and treatment. The latter consisted of mercurial inunction ℥ 1 daily; hot packs once daily; restricted diet; plenty of water; full catharsis; in other words, rapid elimination. The local treatment consisted of hot applications three times daily, with pilocarpin solution gr. ss. to ℥ 1. t.i.d. in each eye.

*Read in Roanoke, Virginia, September 19, 1927, at the Staff Meeting of Gill Memorial Eye, Ear and Throat Hospital.

On May 17th, the vision in the right eye was 20/15 and the left eye 20/20 with correction. T.O.D. 23; T.O.S. 21.

On July 2, 1927. T.O.D. 23; T.O.S. 26. Blind Spots *normal*. Scarcely any difference to be noted in the two fundi; retinal veins in the left eye remained slightly engorged.

On July 14, V.O.D. WS. + 0.75 = 20/15; V.O.S. WC. — 0.50 × 135 = 20/15; T.O.D. 31; T.O.S. 20.

The salient points in the medical examination were as follows:

Tonsillectomy at forty-nine years of age on account of neuritis. At fifty years he had acute frontal sinusitis, which was treated and cured. He works hard, eats plentifully, takes some alcohol. He takes insufficient exercise. His weight is 226 pounds which is some forty pounds overweight. Diverticulitis, appendicitis, and gall-bladder disease were suspected, but could not be proved. The other examinations, blood, urine, etc., were negative.

We have then a man of fifty-seven years, a hard worker, over nourished, overweight, too little exercise and too much alcohol; (any alcohol under the above conditions would be too much). He develops a low grade posterior uveitis of the left eye, which rapidly clears under eliminative treatment. There is, however, a well defined increase in the intraocular tension, first demonstrable in one eye and then in the other. How long this has been going on is doubtful. We may assume it has not been long since there are no field changes; this assumption may be erroneous as the next case would indicate.

Case 2. White; male; fifty-two years of age; unmarried; druggist.

First observed September, 1915, complaining of aching of eyes and tenderness of the globes.

Family History: Mother was semi-invalid for thirty years as a result of polyarthritis.

Previous History: Operated twice for varicocele. He had never been robust. Within past two years he had three attacks of nausea together with obscuration of vision, lasting about an hour and passing off without further incident.

Present Condition: The patient complains that on using the eyes or when he is fatigued, there is throbbing of the temples and pain in the eyes together with nausea. On sleeping these symptoms disappear. He is physically a poor specimen and intensely neurotic.

Examination of the eyes shows the left disc cupped 1 D. and paler than the right. T.O.D. 30 mm. Hg.; T.O.S. —52 (Schiotz) V —20/15 and J. 1. each with proper correction. Blind spots normal. No scotoma. Physical examination by Dr. Thayer is reported as negative except slight pyorrhea and cardiac enlargement of mild degree.

Treatment: Hygienic and dietary; eserin salicylate gr. 1/20 to ℥ three times daily and pilocarpin nitrat gr. 1/10 to ℥ three times daily, alternating.

In March, 1917, the vision was 20/30 and J. 1. in each eye with correction. T.O.D. 21; T.O.S. —29. The patient was comfortable. There were fugacious symptoms which may have been real or fancied. He was given eserin gr. 1/10 and pilocarpin gr. 1/5 three times daily, alternating.

In January, 1920, the left disc was found to be of increased paleness over the first examination. October, 1920, T.O.D. —22; T.O.S. —30; V. 20/15 ea. Dr. Barker reported incipient hyperthyroidism and Dr. Hiram Woods a suspicion of glaucoma simplex.

The eserin was omitted as it blurred his vision. He was given pilocarpin gr. 2 to ℥ three times daily; following this the discomfort of the eyes increased and in December he was put on eserin gr. ¼ to ℥ twice daily, in addition to the pilocarpin.

In December, 1920, two small scotomata made their appearance in the left visual field. He complained of seeing black spots before the eyes and of attacks of scintillating scotoma. In February, 1921, no scotomata could be demonstrated; tension and appearance of the eyes and fundi were without change.

At the present writing the conditions as outlined remain the same. It is difficult to disengage his neurotic symptoms from those that are real, hence only the objective symptoms are of value.

Is the diagnosis of glaucoma simplex justified? It would seem that it is, based on the increased intraocular tension, the presence of the scotomata and the reduction of the visual fields. The intraocular tension, the appearance of the discs, the symptoms and the visual acuity have remained practically unchanged for six years. Further progress of this case is interesting.

In February, 1922, T.O.D. 25; T.O.S. 46. He is now on pilocarpin gr. 2 to ℥ for right eye and gr. 3 to ℥ for left eye. The tension remaining up and it being impossible to use

stronger miotics on account of the blurring and discomfort caused thereby; an iridectomy was done on the left eye in December, 1922. Iridectomy was chosen as an incipient cataract was developing in this eye.

February, 1923, T. O. D. 30; T.O.S. 20. In October, 1924, there was a sudden edema of both maculae with paramacular exudate. Infected tonsils were found and removed. The prostate showed well developed infection and was energetically treated. The macular disease promptly subsided following these measures and the use of sweats, mercury and iodides.

In May, 1925, T.O.D. 31; T.O.S. 25; V.O.D. 20/15; V.O.S. 20/40. In July, 1926, T.O.D. 36; T.O.S. 34. He is now on pilocarpin gr. 5 and eserin gr. 2 to ℥. February, 1927, T.O.D. 29; T.O.S. 25. In March, 1927, the right eye was trephined.

June 21, 1927, the following notes were made. V. 20/30 and J. 1 each eye, with correction. O.D. disc cupped 2.50 D., the cup does not involve the edge of the disc and the vessels are not pushed against the nasal wall. The cup does not look like a glaucomatous cupping. There is little or no atrophy. O.S. disc cupped 1.50 D., cup is large and involves the temporal edge of the disc. The vessels are not displaced to the nasal wall. T.O.D. 11; T.O.S. 29.

Case 3. White; female; age forty-five years. Was refracted in November, 1923. Eyes were normal at this time, and showed moderate hypermetropic astigmatism. In March, 1926, she presented herself complaining of pain and blurring of the right eye. The pupil was moderately dilated and oval with the long axis vertical. There was moderate ciliary congestion and numerous spots of cyclitic exudate on the back of the cornea. The aqueous was hazy with numerous granules floating in it as shown by the slit lamp. The retinal vessels and disc showed moderate congestion. Tension right eye 46 mm. Hg. (Schiotz); left eye 25. On dilating the right pupil with euphthalmin, the tension went to 43. She was hospitalized; infected tonsils removed at once. The treatment in hospital was as follows: Hot packs once daily; leeches to the right temple; sodium salicylate gr. 30 t.i.d. inunction with mercurial ointment ℥ 1 daily; hot fomentations and pilicarpin nitrat solution gr. 2 to ℥ 1, three times daily in the right eye.

The interesting aspect of this case of uveitis with increased tension now follows: Within three weeks the uveitis completely cleared. The slit lamp showed no changes; the ophthalmoscope revealed only a cupping of the right disc of 3 diopters together with slight paleness. Tension remained between 27 and 35. The visual fields showed contraction with a paracentral scotoma.

Thus at this stage the case presented *only* symptoms of a glaucoma simplex. The most careful study with the lamp and the ophthalmoscope showed no evidence of the preceding uveitis. Had this case been seen at this stage even a careful history would not have revealed the presence of the uveitis in all probability. It would have been diagnosed as a case of glaucoma simplex by most of us, I am sure. The tension, fields and vision returned to normal and the paracentral scotoma disappeared. The cupping of the disc remained. She was seen a short time ago for refraction and the eye has remained normal.

There is one aspect of the etiology of this puzzling disease that may be of interest to discuss. First, let us consider the cases reported. In case one, there were no suspicions of glaucoma, but there was a posterior uveitis of the left eye, most probably of toxic origin. The tension of the right eye was increased; later, after the uveitis had about cleared, the tension of the left eye was found to be increased. There were no other symptoms of glaucoma; the visual fields were normal, there were no scotomata and the blind spots were normal. There was no reduction of visual acuity.

We might say this patient is in the preglaucoma stage. We can scarcely recommend operative procedure on increased tension alone. What then is the cause of the increased tension in this case? May we not assume that due to his improper mode of life he developed a low grade toxic uveitis and that this inflammation of the uvea so altered the secretion of the nutrient fluids of the eye that the condition called glaucoma has arisen? Or may not this low grade inflammation which may have been going on for a long, long time brought about a change in the drainage apparatus at the iris angle so that proper and prompt removal of the nutrient fluids of the globe cannot take place; or may not both conditions have arisen?

Case 2 offers several points of interest, particularly in connection with case 1. In case 2, we have an intensely neurotic patient, so

much so that it has been found necessary to eliminate from consideration all the subjective symptoms. If we omit the subjective symptoms, he carried for seven years an increased intraocular tension with little or no damage to the eyes. According to reports upon his physical condition by Thayer, Barker and Parker he showed a psychoneurotic state with nosophobia and vasomotor disturbances. Slight thyreopathy. Genital hypoplasia. In the latter examination by Parker, cerebral arteriosclerosis was suggested. I am inclined to think there must be some organic cerebral disease, as the psychoneurosis has become much worse. In fact, this patient is now really a melancholic.

He evidently had foci of chronic infections, the tonsils, teeth and prostate, that would easily account for chronic vascular disease. Those toxic conditions did acutely affect the eyes when the chorioretinitis centralis took place. How long was the tension increased before this patient came under observation in 1915? He was under observation for seven years with increased tension of considerable degree and very slight changes in the discs: even now in one disc there is no cup that involves the edge of the disc, and very little or no atrophy. If increased intraocular pressure were responsible for all the symptoms of glaucoma it would seem in this case that most certainly earlier changes in the visual fields might be expected. But in the last fields taken they were scarcely disturbed in the normal contour, and this after twelve years *at least* (possibly longer) of increased tension. The necessity for operation rose when the mioties no longer controlled the tension with the pupil contracted to the minimum commensurate with efficient vision.

Why does this case run so many years with increased tension of marked degree, and some other cases with scarcely any, or possibly no demonstrable increased tension, have great field changes and rapidly deteriorating vision? Evidently there must be a factor other than increased intraocular tension. May it not be that this factor is interference with the nutrition, due to alterations in the aqueous? This alteration may be much or little and different in degree and so affect one portion of the globe more than another, thus in one case causing interference with the drainage, hence increased tension. In another case the changes may be mostly in the posterior segment as a result of the malnutrition, in which case the damage will be mostly in this region, and field and disc changes will occur.

It will be very interesting to follow case 1 and to observe its course as compared with case 2. I think it probable that case 2, had at one time low grade uveitis, and that this might have been discovered had a slit lamp been available at the time.

In case 3, we have a typical *acute* uveitis from a focal infection. This was followed by what appeared to be a typical glaucoma simplex. It is my belief that what we observed in this case, occurring over a period of several weeks, is what takes place in some cases during a period of many years; as in the first two cases for example The nutritive damage in case 3 was not of sufficient intensity to cause lasting injury.

As a result of chronic inflammatory processes, we know very minute, but very important changes take place in the secretory epithelium; in the kidney in chronic nephritis, for example. After a certain time the secretory epithelium begins to fail in the function of elimination. That is, the fluid excreted is changed. May we assume that this same condition may obtain in the secretory epithelium of the ciliary body and that the aqueous is a changed aqueous? Hence the nutrition of the avascular structures of the globe suffers and the symptom complex called glaucoma makes its appearance.

It is not easy to accept the dictum that *all* the symptoms of glaucoma arise from the increased tension. We know that relief of tension by a proper trephining operation which maintains filtration does not always stop the ravages of this terrible disease; particularly is this true in advanced cases with great reduction in the visual fields. What then is the cause of the continued atrophy of the retinal fibres causing greater contraction of the visual fields, greater cupping of the disc and finally blindness? It is not due to increased pressure on the retinal elements and the disc, because this hypertension has been eliminated. It may be that the increased tension having once started the process is continuous even after the increased tension is reduced, but this does not sound probable. What then is the cause of the continuation of glaucoma? Can we not assume it is the malnutritive process in the

secretory epithelium; the epithelium of the ciliary processes in particular?

Difficult as it is, we should study in the laboratory the early and minute changes taking place in the secretory epithelium and allied structures in the eye in order that we may know their histo-pathology with the same thoroughness that we know such changes in the kidney.

Ophthalmic pathology is yet young and there is a great deal to be learned. Inflammation of the uveal tract has been studied only in its grosser aspects; we do not as yet know the earliest changes occurring in this structure as a result of chronic low grade inflammation. We are not yet satisfied as to the nature of the secretion (aqueous) of this structure. It is a mooted question as to the glandular formation of the ciliary processes. However, the aqueous is there and it must furnish nourishment in part, at least, for the avascular structures of the globe.

Lauber, of Vienna, remarked in a lecture on this subject fifteen years ago, that some other factor than increased intraocular tension was the cause of the cupping of the disc, and Fuchs speaks of the development of lacunae posterior to the lamina cribrosa. Many of us have seen cases with the classical glaucoma symptoms without demonstrable increase of the intraocular tension. We explain such cases by saying the tension varies greatly at different times, and that we do not happen to take the tension at a time when it is above normal. This explanation is not entirely satisfactory. To summarize:

1. Increased intraocular tension alone does not account for all the symptoms in all cases of glaucoma.

2. The careful study of many cases of so-called glaucoma will give evidence of uveitis of low grade.

3. May not the chronic uveitis affect the epithelium of the ciliary processes?

4. If this secretory epithelium be diseased as a result of this chronic inflammation may we not have here a condition analogous to that seen in chronic nephritis in which the secretory epithelium suffers? As a consequence, far reaching toxic and nutritive changes occur throughout the body.

5. If this aqueous which is a product of the ciliary epithelium be altered, it must be that the nutrition of the eye will suffer.

6. It may be that this alteration of the aqueous will cause it to have a toxic effect and so further affect the integrity of the ocular tissues.

7. It has been suggested by several authorities that changes in the aqueous may account for improper and insufficient drainage and thus for the increased intraocular tension.

8. The last named hypothesis is no doubt true, but in addition thereto the nutritive disorders caused by an altered aqueous are believed to be effective in causing some of the symptoms.

Extracts from the monograph of W. Stewart Duke-Elder; being the Sir Francis Laking Prize, from the Biochemical Department, St. George Hospital, London, on the nature of the intra-ocular fluids.

"Ever since the beginning of scientific ophthalmology—the origin and nature of the intra-ocular fluids have been the subject of investigation, discussion and disagreement. The theory which is most generally accepted at the present time is that the aqueous humour is secreted by the cells of the ciliary epithelium, that it circulates through the eye, and that it finds an exit therefrom largely by way of the canal of Schlemm.

"Authority tells us that the most common cause of glaucoma is an obliteration or diminution in the efficiency of the exit channels of the intra-ocular fluids at the angle of the anterior chamber, a damming back of the aqueous with a consequent increase of tension. If the condition of raised tension were due to the damming back of fluid at its exit, it appears only reasonable to expect that the aqueous being unable to get out, would be present in excessive amount. The striking thing is that in the vast majority of cases exactly the opposite condition holds good; the aqueous is definitely diminished and in the more acute cases is present in negligible quantity while the lens and iris are pushed forward almost to touch the cornea. It would seem, therefore, that Authority is certainly illogical, and it may be suspected that it is probably wrong.

"The strongest piece of indirect evidence in favour of the intervention of secretory energy in the formation of the aqueous humour is that although physiological experiment has correlated the variations of intra-ocular pressure directly with variations of the blood pressure,

clinical experience shows that, while there seems to be a certain association between them, the two do not vary in parallel.

"When in addition to the hydrostatic pressure of the blood we take into consideration also its osmotic pressure, with the further influence of changes in the concentration of salts and hydrogen ions on the physical state of the vitreous and lens, there seems every reason to suppose that the energy necessary to maintain and vary the intra-ocular pressure can be adequately explained without postulating a special source in a separate secretory process.

"I have come to the conclusion; that—the nature of the mechanism of the formation and circulation of the aqueous humour as at present classically accepted and taught is wrong: that—the aqueous is neither a secretion, nor in the accepted sense a transudate from the blood; that—it is a dialysate from the capillary plasma, the essential dialyzing membrane being the capillary walls: that—under normal conditions, while an interchange due to metabolic activity constantly occurs, and an internal thermal current exists, the aqueous humour does not circulate actively through the eye, but is in equilibrium with the capillary blood; that—at the same time, constantly occurring changes of pressure, induced by muscular movements, etc., superimpose upon it secondarily a minimal and intermittent circulation.

"Normally the capillaries are relatively impermeable to those constituents of the blood which occur in colloidal aggregation. It is well known that in a state of dilatation the permeability of the capillaries is increased, and that in these circumstances a larger portion of colloidal molecules is able to penetrate through their walls until a stage is reached when practically all the constituents of the plasma are allowed to pass indiscriminately (see Krogh, 1921). This occurs in the eye as elsewhere, and along with the increased protein content of the aqueous humour formed under those conditions very definite changes in the ionic distribution between it and the plasma take place. This aqueous I have proposed to call the *Plasmoid Aqueous*.

"The aqueous humour formed under these conditions which has been most extensively studied is the fluid re-formed after paracentesis of the anterior chamber. This re-formed aqueous has been variously called 'albuminous' or 'secondary' or 're-constituted' aqueous.

"It will, however, be shown that in addition to albumen it contains all the colloidal consitutents of the plasma in abnormal amount—globulin, immune bodies, etc., and that definite changes involve its other constituents. Further, a fluid of the same chemical constitution is formed not only after paracentesis but under all conditions where capillary dilatation occurs, as on radiation of the eye or on application of heat, irritant subconjunctival injections, mechanical and chemical irritation of the cornea, the production of venous congestion by subluxation of the eyeball or constriction of the neck. Moreover, its formation is prevented by any agency which prevents the capillaries dilating, as stimulation of the sympathetic, the injection of adrenalin, or ligature of the carotid.

"The composition of the aqueous is therefore a function of the state of capillary dilatation rather than of the pressure difference between the blood stream and the chambers of the eye.

"Difficultly diffusible drugs, moreover, when they are injected into the blood stream are found in traces in the normal aqueous.

"It has already been noted that when the permeability of the capillaries is increased by dilatation or by diminishing the physiological integrity of their walls by any agency, all these substances pass with much greater freedom into the eye.

"The osmotic pressures of the aqueous and the blood are not far removed in magnitude.

"As with the chemical composition so with the physical properties—all the variations from the normal that have been described as occurring in the aqueous humour can be explained on physico-chemical lines as being the direct consequence of either a change in the permeability of the capillary walls, or a change in the concentration of the constituents of the blood.

"From the chemical point of view, therefore, the aqueous would appear to show both in its normal constitution and in the variations of its constitution from the normal, a composition which is difficult to explain in any other way but that it is determined by the thermodynamical considerations which govern the formation of a dialysate from the blood. There is no evidence of any chemical energy being expended as we would expect in the elaboration of a secretion, either in the forma-

tion of new substances, in the retention (apart from that on a physical basis) of substances already present, or in the abnormal concentration of any of its constituents.

"If the aqueous is formed by a physical process of dialyzation as its chemical constitution both in the normal and in the abnormal state would strongly suggest, it follows that the physical forces involved in its production must conform to the thermo-dynamical equilibrium which has been considered. If, on the other hand, the terms of this equilibrium are not satisfied, it would seem that in the present state of our knowledge it will be necessary to postulate the intervention of some other force which for a convenient name we may call 'secretory'.

"This physical equilibrium entails hydrostatic and osmotic forces and differences in electrical potential. It is through the endothelial cells of the capillary walls that all vital processes are mediated; through these the process of dialysis will take place. We have already seen that the osmotic pressure of the aqueous humour corresponds with that of a dialysate of the capillary blood—its molecular concentration thus forms a strong argument in favor of this theory of its origin. If the system is in equilibrium the blood pressure in the capillary circulation must exceed the hydrostatic pressure of the aqueous (i. e. the intra-ocular pressure) by an amount which is equal to the difference between the osmotic pressure of the two fluids. Thus equilibrium is attained when the hydrostatic flow from the blood stream to the eye is exactly compensated by an equal and opposite osmotic attraction from the aqueous to the blood.

"In addition to the fact of the existence of a chemical equilibrium all the conditions of physical equilibrium—hydrostatic, osmotic, and electrostatic—seem also to be fulfilled.

"We therefore conceive of the eye as containing a fluid in membrane—equilibrium with the capillary blood. As such it must be essentially stagnant. If this conception is correct there are two large questions which it is advisable to clear up at the outset; the maintenance and variation of the intra-ocular pressure, and the circulation of the intra-ocular fluids.

"*The most convincing argument in favor of a special secretory force responsible for the formation of the aqueous humour is the fact of the intra-ocular pressure.* Curiously it is a consideration which has rarely been put forward.

"The enucleated eye has a tension of 8 to 10 mm. Hg. which it retains for some considerable time, and only loses gradually on the disintegration of the lining cells.

"Since it is found under these conditions, the maintenance of this tension cannot be due to the blood pressure, and since it remains in the enucleated eye, it cannot be due to any hypothetical secretory activity; there must be a lining structure which acts as a relatively water-proof membrane and retains within it fluid up to a pressure of 10 mm. Hg. Such a structure is not without parallel elsewhere in the body; it corresponds to the membranes or capsules surrounding glands such as the salivary glands, organs such as the tongue, muscle groups, etc. When pressure is generated within these in pathological conditions, as in inflammatory processes, abscess formation, etc., a condition of tension is set up which may proceed to strangulation of the organ unless it is relieved by surgical incision of the membrane.

"It may be suggested that such a 'membrane' is formed by the endothelium of the cornea, which Leber (1873) showed to be impermeable up to relatively high pressure, the endothelium and epithelium covering the iris and ciliary body, and the retinal epithelium supported by the membrane of Bruch.

"Between this relatively impermeable membrane and the slightly distensible sclerotic lies the vascular *reservoir of the uveal tract.*

"The equilibrium level of the intra-ocular pressure is maintained by the hydrostatic pressure in the capillaries *minus* the difference in osmotic pressure between the aqueous and the blood.

"It is probable that since the canal of Schlemm is favorably situated far down the venous pressure gradient and is surrounded by an endothelial wall resembling that of the capillaries, while osmotic re-absorption into the blood stream is possible throughout the eye generally, a large part of the process will take place here. Although no movement of fluid in mass thus results, these considerations will tend to impose upon what is essentially a reciprocal ebb and flow occurring throughout the eye, a tendency towards a diffusion

from the iris and ciliary body to the angle of the anterior chamber.

"Under normal pressure conditions the venous pressure in the exit veins is slightly higher (1 to 2 mm. Hg.) than the intra-ocular pressure, and a hydrostatic outflow of the intra-ocular fluids is therefore impossible; but that under conditions of raised intra-ocular pressure, the pressure here tends to fall below the chamber pressure. Under these conditions it is possible that the equilibrium is so altered that a hydrostatic outflow may occur temporarily through the canal of Schlemm, which thus acts as a safety-valve mechanism to aid in the maintenance of the intra-ocular pressure at its normal level.

"The evidence of the injection of dyes therefore demonstrates no actual entrance flow of fluid into the eye; but merely indicates that a reciprocal process of dialysation takes place between the blood and the aqueous humour, whereby foreign substances enter the eye from the capillaries by simple diffusion.

"If the evidence of injection has led to any conclusion at all it must be to the conclusion that all parts of the eye are concerned in the formation and absorption of the aqueous humour; that the ciliary body is to the largest extent implicated in the first process, and canal of Schlemm and the anterior surface of the iris in the second.

"The ciliary body is not always present; when it is present the aqueous is not formed from it exclusively. It is therefore not essential for its formation. If it is accepted as a gland, then it must be admitted that it shows no activity as a gland but merely allows the aqueous to diffuse through its cells passively; that is, it must be admitted that it secretes nothing, for the intra-ocular fluids are in thermodynamical equilibrium with the capillary blood, and in their passage through the epithelial cells no work of any kind—chemical, hydrostatic, osmotic, or electrostatic is done. On the other hand, the anatomical configuration of the ciliary body can be looked upon as providing every facility for dialysation with its abundant and direct blood supply and with its surface area multiplied with reduplications and plications.

"A scheme whereby the intra-ocular pressure is maintained at its normal level has already been suggested. *The equilibrium point—that at which the eye is rendered sufficiently rigid to function as an optical instrument and at which its circulation and metabolism can at the same time proceed without disturbance*—is normally maintained by the difference between the hydrostatic pressure in the capillaries and the osmotic pressure called into being by the excess of colloidal material in the plasma in comparison with the aqueous. The equilibrium point may be raised if the capillary pressure is raised to a higher level, or if the difference in colloid content between the two fluids is lessened, as occurs, for example, when the protein material in the aqueous is increased, as in inflammation. The equilibrium may be disturbed by an increase in the volume pressure of the contents of the globe—an increase in the aqueous, or in the volume occupied by the vitreous or the lens or the uveal blood reservoir. Any such disturbance is normally compensated within very wide limits by the safety-valve action of the canal of Schlemm, and the aqueous thus acts as an elastic cushion, its quantity being in inverse proportion to the volume occupied by the blood-vessels and the vitreous. If for any reason this safety-valve action is rendered inefficient or abolished, then disturbances of the equilibrium become cumulative and tend to be permanently effective, and the intra-ocular pressure rises. If the disturbance is due to vascular conditions, then the resultant rise of pressure is limited to the effective limits of the intra-ocular blood pressure. The causes of such a disturbance are to be found in the factors which control the general state of the circulation, and in the pathological state of the capillary walls and the physical, hormonal, nervous, and chemical influences which preside over their physiological activity. If the disturbance is due to an increase of volume in the vitreous then the resultant rise of pressure is practically without limits.

"The vitreous is a gel, and our knowledge of the turgesence and turgidity pressures of gels is as yet by no means as extensive as we might wish.

"The swelling and the turgidity pressure of the vitreous can be measured experimentally, and that of the lens can be seen in the beam of the slit-lamp. The turgesence may progress to such an extent as to push out practically all the aqueous and abolish the anterior chamber, and to force out the blood from the choroid reservoir, until it may over-

come the effective blood pressure of the feeding arteries and strangulate the eye. Variations in the turgidity balance play a very important part in a wide range of biological processes, and pushed beyond pathological limits the potential force involved in turgidity pressure is enormous. Rocks can be split asunder by inserting dry wood into existing crevices and making the colloids of the wood swell by pouring a little water over it—a fact well known to the ancients.

"Thus glaucoma is interpreted as a pressure symptom merely. It is probably much more. For example the same or parallel physico-chemical processes which produce changes in the physical equilibrium of the vitreous may as well and as reasonably derange the still more complex physico-chemical basis of the mechanism which converts radiant energy into nerve impulses in the retina and which mediates the functional activity of the nerve fibres in the retina and the optic nerve. *Glaucomatous symptoms appear to be almost independent of pressure, and at other times to progress after the pressure has been efficiently relieved.*"

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SOME LITTLE RECOGNIZED CAUSES OF CHRONIC SYMPTOMS.*

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Perhaps the most epochal advance in internal medicine since the discovery of the relationship of bacteria to acute disease entities is the more recently found evidence of an indisputable relationship of chronic focal infection to chronic systemic disease. Since such a relationship has been proven we have found that many time-worn diseases are in reality only symptoms that often, even in long standing cases, rapidly vanish when the primary focus or foci are found and cleared up.

While in chronic as in acute diseases prevention should be our highest aim, we are not fortunate enough to see many of our patients until the noticeable symptoms have become firmly fixed, so that necessity forces us to turn towards the problem of helping such cases even though they are of long standing.

No one disputes the evident fact that in dealing with chronic patients the old "tried and true" methods, though still very important, have all too often proven inadequate to the end of getting our patients on the permanent road to health. Likewise, no one disputes that in some cases the removal of the primary focus works wonders in the restoration of our patient to a normal condition. And yet there is another large class of chronics who apparently neither respond to the older methods of treatment, nor to the newer method of removing a recognized focus supposedly causing the symptoms, nor to the various combinations of such treatments.

It is such cases, who have had tonsils or teeth or sinus infection corrected with no response that have shaken the faith of many a good doctor in the workableness of the theory of focal infection. And it is with the hope of throwing some light on the treatment of just such cases that this paper is presented.

A brief review of a few of our routine cases will, perhaps, better than any other way, illustrate the points in consideration.

During June, 1925, a single lady of thirty-five presented herself for treatment, complaining of a general run-down condition. The history was strongly suggestive of a nephritis that had been going on untreated for a period of twelve months or more. A careful examination showed the urine to be loaded with pus, casts and albumin, with an unsuspected chronic maxillary sinus, chronic infection of the tonsils and chronic endocervicitis as the apparent cause.

In this case the maxillary infection, which proved to be of dental origin, was judged to be the chief offender. The diseased teeth were extracted and the sinus drained by enlarging the opening through the alveolus. At the same time, the infection of the cervix was cleared up. A week later the tonsils were removed.

The kidneys rapidly returned to normal and after a period of nearly two years have shown no sign of the recurrence of a Bright's that seemed to be in a hopelessly advanced stage.

A married lady of fifty-seven had been having attacks with her head at intervals for six years. They would begin with dizziness and severe pains that often required a hypodermic for relief. They were also usually accompanied by severe mental confusion and at times loss of consciousness. She would take a course of drastic purgation and after one or two weeks the condition would clear up, only to be followed with a similiar attack later on. These attacks had become more and more fre-

*Read before the Southside Virginia Medical Association at its Emporia meeting.

quent until she had grown very weak and anemic, and almost incapacitated for work of any sort. No diagnosis had ever been made except that she had been told her condition was due to high blood pressure. A careful examination showed a chronic maxillary sinus infection whose active toxic symptoms dated from the time she had her teeth extracted six years previously, following which she had her first bad spell. For the past year she had not been free of a dizzy headache even in between the attacks. There was also a rather positive type of hemorrhoids, which was contributing towards a persistent constipation, and the tonsils showed evidence of chronic infection.

Following drainage of the sinus in question, all head symptoms cleared up immediately. A little later, as soon as she was sufficiently strong, the hemorrhoid and tonsil operations were done. Her color rapidly improved, the bowels are now moving normally, and she has entirely regained her health.

A married lady, aged twenty-four, came in because of a persistent agonizing left facial neuralgia and chronic indigestion. She had spent the greater part of the past five years in hospitals and under treatment outside. During this period she had been operated on a number of times and was almost literally shorn of every organ she could do without, including tonsils, teeth, gall-bladder, appendix, pelvic organs and various others too numerous to mention, in the various attempts to allay her symptoms. Her hemoglobin was so low that she practically had no color and she was one of the most toxic looking human beings I ever saw, with all symptoms growing worse.

Examination revealed a right-sided maxillary sinus infection (remember the active symptoms were on the left side) and a chronic infection of the uterine cervix which had been left in at the time of the removal of the other pelvic organs. Drainage of the sinus and clearing up the cervix infection has absolutely put this patient on her feet again and transformed her into a healthy looking woman.

A married woman of thirty-two presented for treatment because of an unbearable neuritis in her right shoulder. She had been under treatment for some weeks and several good men had failed to locate any cause for the aggravated shoulder condition, which had incapacitated her for work for over two months.

She gave a history of considerable disturbance of menstruation for several years. Examination showed a large boggy uterus, resembling one about two months pregnant, and a severe erosion of the cervix. Appropriate treatment of the cervix condition with tonics and vaccines cleared up the neuritis rapidly and she has had no recurrence.

A woman of twenty-two came on account of a persistent and aggravated painful keratitis of the left eye that resisted all local treatment. Vision in this eye was counting fingers at six feet, and the other eye was also becoming involved. For this reason, and because of the further fact that one of her brothers had lost an eye in a similiar way, she was much alarmed.

Examination showed eight abscessed teeth, a left maxillary sinus infection, chronic disease of the tonsils and a marked endocervicitis. On clearing up these points of infection, the eyes rapidly improved and were practically well in about fifteen days, with vision normal.

A woman twenty-three years of age presented for treatment on March 29, 1926, complaining of a numbness from her waist down, which approached a paralysis in gravity as she had very limited use of her lower limbs. She also showed a melancholic type of mental deterioration. Her tonsils had been removed about three months previously with the hope that she would improve, but instead she was steadily growing worse.

Her history showed a very stormy menstrual life with much disturbance during her pregnancies, which had been three in number, and her present symptoms dated from the birth of her last child six months before. Examination showed a well nourished woman, with every organ negative except a large boggy uterus with a rather marked cervicitis. Upon appropriate treatment of her uterine and cervical condition, her symptoms rapidly improved and she is now strong and well both mentally and physically.

On November 2nd, 1925, a married woman of thirty-five was brought because of a rapidly developing melancholia with mental confusion. She had been in failing health for some years, but no mental symptoms had been noticed until about one week previous to her presenting for treatment. Clearing up an aggravated cervix infection and removal of her tonsils

restored her to normal both mentally and physically and she is now in better health than ever before in her life.

A married woman, thirty-nine years of age, with a history of ten confinements, was referred on September 24th, 1926, on account of a lethargic stupid mental condition with very poor appetite, both of which dated from the birth of her last child two years before. All symptoms were growing progressively worse and she was becoming quite weak and looked sick. Her people stated that she had always been a bright, animated, hard working type of woman, who took more than average interest in her children and home life. Her pregnancies and confinements had all been normal with the exception of the mental stupor that began immediately following her last confinement. Her tonsils had been removed some weeks before with the hope of alleviating the toxic condition into which she had developed, but there had been no improvement.

When she came to us a most careful examination could elicit nothing definite as a cause of her symptoms except a boggy enlarged uterus with a rather extensive endocervicitis. Her condition had become so grave that little hope of helping her was held out to the family, and yet, following appropriate treatment of the cervix and uterine condition, she immediately began to improve and has since entirely recovered from a condition that seemed absolutely hopeless as viewed from older methods of treatment.

In the work we are doing we have long since learned to look for some form of chronic septic infection as the cause of heretofore unexplainable symptoms of chronic patients. Each of the cases reported had been given the best treatment available along old lines before coming under our observation. While we need never expect to succeed in making all of these unfortunate sufferers well, the results have often been so marvelous and so prompt, even in long standing cases, as to be almost unbelievable.

In summing up, I would say that the more we have followed out the idea, as given above, in treating our chronic patients, the more thoroughly convinced I have become of the following conclusions:

1. There is very, very little, if any, of what was once called idiopathic or functional disorders of the system.

2. For every symptom there is some definite cause, if we can but locate it.

3. Most chronic conditions still diagnosed as disease entities are in reality merely symptoms that rapidly vanish when the infection causing it is located and properly treated.

4. Infection of the glandular structure of the uterine cervix is of such frequent occurrence and of such grave importance as to be the origin of more symptoms and more pathology and more invalidism than any other gynecological condition.

5. Many chronic sufferers are such as a result of an unrecognized chronic maxillary sinus infection and, regardless of the severity or the location of the symptoms, any treatment short of clearing up such an infection will be of little permanent benefit.

6. The doctor who is skilled in searching out and eradicating *all* foci of infection is going to be an outstanding man of the future, and, while treatment along old lines is helpful, it is not essential to the curing of many chronic patients.

7. Chronic patients almost regardless of age, whose symptoms are not of too long duration, when thoroughly detoxicated, tend to get back to normal again, regardless of the kind of general treatment given afterward.

METHODS OF IMPROVING MINING CAMP SANITATION FROM THE STANDPOINT OF INDUSTRIAL MEDICINE.*

By J. G. BENTLEY, M. D., Blackwood, Va.

The specialty, industrial medicine and surgery, has thrown the practice of medicine in intimate contact with industry. Up to ten years ago the medical profession, while it dealt largely with workers, cared for and studied their cases individually as private cases. In industry the problems of public health, preventive medicine, and preventive surgery were untouched and unknown. Industry to the physician was a huge, indefinite machine and its workers suffered directly because of accident, or, indirectly, because of disease brought on by conditions of environment. The doctor working in an industrial community recognized possibilities of relief, but his opinion was seldom sought and the State confined its activities to general health supervision. In 1912, Workmen's Compensation Acts came into effect in many States, and under the spur of neces-

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sity the surgical risk of industry began to receive attention and corrective action. (Let me not go further until I give credit to Drs. W. Irving Clark and Harry E. Mock, for it was from their literature that this paper is compiled). The science of industrial medicine began to develop soon after the beginning of the year 1912. The field has gradually broadened. With the treatment and after-care of accidents as a beginning, physical examinations, diagnosis and treatment of sickness, control of sanitation, general publicity on health matters, housing, etc., have rapidly become part of the industrial physician's work.

I have so far spoken only of industries, but since we live and work in a mining community, and since I wish to present to you a method of maintaining good sanitation of a mining camp I shall speak only of mining camps.

The majority of large modern mining camps have good sanitation from an engineering standard. The ventilation facilities are adequate, the plumbing of the dwelling houses and other buildings is well executed and the drinking water excellent. It will be found, however, that although the basic installation is satisfactory, the good effects are in many cases lost because of the lack of attention. Good toilets become foul from neglect, ventilating systems fail to work from lack of proper attention. What is everyone's business becomes no one's business and, as a result, sanitation is poor.

All the sanitation exclusive of its engineering features should be under the control of the Chief Physician and he, and he alone, should be responsible. To carry on this branch of work, he should have at his command a force of cleaners who carry on their work under him. The sanitary department should be thoroughly organized and run on exactly similar lines to those in use in other departments. As soon as the whole sanitation of a mine is placed under one head, instead of being scattered through a number of departments, a thorough system can be developed and a maximum efficiency attained. The actual work of sanitation can be then organized along lines somewhat as follows:

To each section of the mining camp a special workman is assigned and each man thus assigned is given a definite duty. Thus, some will be cleaners and sweepers of offices, commissaries, etc.; some street cleaners and garbage collectors; others clean and care for toilets and drinking fountains. Each man has his specific job and is responsible to his foreman who in turn is responsible to the camp physician.

The physician should make sanitary rounds at regular intervals, inspecting especially the condition of the toilets. No odor, no matter how slight, should be allowed to pass without investigation and any improper condition should be remedied at once. When camp sanitation is handled in this way, after the primary clean-up, it is surprising how little trouble occurs. The large majority of people appreciate cleanliness and usually change their habits to conform with their changed sanitary conditions. The visiting nurse should make frequent visits to the homes of the employees and in tactful ways endeavor to teach the housewife the art of cleanliness in and around the house. The physician should make daily inspections of the commissary and meat market; both, of course, should be kept scrupulously clean. The hotel should be watched constantly and should be run under the supervision of the company; the food should be clean, wholesome and of good variety. Hotel and commissary attendants should, previous to employment, undergo a careful physical examination and periodical examinations at monthly intervals thereafter. Should these examinations reveal any disease which might endanger the health or lives of boarders or roomers, the attendant should be at once isolated and treated.

Hand in hand with the above methods for the improvement of sanitary conditions of a mining camp must go carefully planned educational campaigns on disease and accident prevention; on the value of proper diagnosis and early treatment when disease conditions develop; on the fallacy of patent medicines and the danger of employing quacks; on the value of proper diet, the need of drinking freely of pure water during working hours, the necessity of daily outdoor exercise and on the subject of hygiene and sanitation in the home.

From the foregoing it will be seen that the work of the medical department falls into three divisions, medical, visit-nursing and sanitation,—each of these having special functions and contacts with other departments in the mining camp.

The medical department acts as a health

center for the camp, its personnel consisting of the chief physician and his assistants and nurses. It is in close contact with the safety, engineering, and employment departments, and is allied with the visiting nurse service. The visiting nurse service forms the link between the medical department and the sick or injured workers. It also acts as a bureau of information. The sanitary section has for its function all cleaning and sanitary inspection and control in the camp. It should be administered by the physician or a trained sanitary officer.

To effectively improve sanitary conditions in a mining camp, physical examinations of all employees should be made and conducted by the health department. The object of this examination is to determine the physical condition of the prospective employee, in order that he may be placed at work for which he is properly fitted; to prevent contagious disease being introduced into the camp, and to enable the medical department to have a record of every worker's physical condition at the time he enters the employ of the company. The physical examinations in this industry should be similar to that of the Army and Navy, but lay emphasis on certain points which experience has shown are of special importance. These are:

1. The functional power of the heart.
2. The presence of signs of active or latent tuberculosis.
3. The presence of hernia or weakness in the hernial region.
4. The function of the joints.
5. The presence of varicose veins or varicose ulcers.
6. Active contagious diseases of any kind.
7. Blindness of one eye or partial loss of vision of both.
8. Deafness.
9. The condition of the back.
10. Painful flat feet.

The importance of these defects lies not in the fact that they may incapacitate the worker, but that they are defects which may be overcome by treatment and correct placing at work. The health department should co-operate with the employment department to bring this about, and smooth working between the two departments is imperative. Each must appreciate the technical difficulties of the other—difficulties which are very real.

Summary

1. The department of sanitation should be under the control of the chief physician instead of being scattered through a number of departments.
2. Sanitary inspections should be made at regular intervals by the physician and his staff of sanitary workers.
3. Home visiting by the nurse.
4. Initial and periodical examinations of workers employed in departments where there is a health hazard.
5. Spreading health and sanitary publicity by educational campaigns.
6. The medical department is the health center for mining camp.
7. Physical examination of all applicants for position in this industry.
8. Complete co-operation of the medical department with all other departments of the organization.

TUBERCULOUS MENINGITIS IN INFANCY AND CHILDHOOD—ANALYSIS OF TWELVE CASES.

By N. W. SISSON, B. S., M. D., New York, N. Y.

The purpose of this paper is not to add something new to the subject of tuberculous meningitis but simply to present in an analytical manner the various clinical and laboratory findings as shown by the cases which have recently come under my personal observation. The series, although small, is quite interesting on account of the fact that, of the twelve cases, two occurred simultaneously in the same family. The one, a boy of seven years, was brought to the hospital with the presenting symptoms of headache, vomiting and drowsiness. After a careful physical examination a tentative diagnosis of tuberculous meningitis was made. The following day the father of the patient remarked that he had a daughter at home, age nine years, who had been ill for a few days and whose behavior was similar to that of the boy's. He was advised to bring the child to the hospital for an examination. On admission she complained of headache and drowsiness. Her physical examination warranted a diagnosis similar to that of her brother's. A spinal puncture was done and both cases showed a spinal fluid picture typical of tuberculous meningitis. This diagnosis

was later verified by the presence of acid-fast bacilli in the fluid. This is a rather remarkable coincidence and while an exhaustive study of the voluminous literature on the subject has not been made, I have not yet seen mention of a similar occurrence.

Tuberculous meningitis is not an uncommon disease in children. According to most authorities, it ranks first as being the most common form of acute meningitis seen in childhood. Rarely, or perhaps never, does the disease exist primarily but is associated with a tuberculous process elsewhere in the body, either in the form of a general or miliary tuberculosis, as is most often the case with infants, or an involvement of the lymph nodes or other organs. The late Dr. Holt[1] states that, although it is not infrequent to see meningitis without symptoms of tuberculosis elsewhere, he had never failed at autopsy to find other tuberculous lesions in the body.

Analysis of Cases

History.—The histories as obtained from parents or relatives are at times far from being accurate, and for that reason the physician has to depend a great deal on his power of observation and physical findings. This is particularly true in dealing with children. Anyone who has had much experience in taking histories from the type of patients which frequent the large free dispensaries can appreciate the previous statement. In practically every case, the presenting symptoms were such as to lead the way for a diagnosis of cerebral involvement of some sort. The chief complaint on admission was as follows: One case complained of fever, irritability and twitchings of lips and hands, followed by coma. Another presented symptoms consisting of cough, fever and convulsions, while another complained of fever only. Three cases complained of fever, vomiting and anorexia. One had headache and vomiting; another had headache, vomiting and drowsiness. Two cases complained of vomiting, drowsiness and convulsions, while another complained of vomiting and drowsiness. One complained of vomiting, convulsions and constipation.

Age.—The youngest case was that of an infant four months old, while the oldest was a girl of nine years. Of the twelve cases studied, eight were in patients under three years of age. Neal[2] states that, from a study of 662 cases, more occurred between the first and second year of life than at any other time.

Race.—The disease, if conclusions can be drawn from this series, seems to be evenly distributed among the various nationalities. The representatives of the West Indies carry off first honors, while the Negro runs a close second, each having three and two cases respectively. The American, Italian, Polish, Russian, Hebrew and Canadian people had one victim each as a representative.

Family History.—In taking the histories, particular effort was made to ascertain if any other member of the same household had tuberculosis in any form. As a result, only three cases reported a positive history. In one family a sister died of pulmonary tuberculosis at the age of sixteen years, while a brother had been told that he had tuberculosis. In another case the mother died of pulmonary tuberculosis. In the third case the father died of pulmonary tuberculosis while his daughter was in the hospital dying of tuberculous meningitis. The nine remaining cases denied any knowledge of tuberculosis exisiting in their respective families.

Past History.—Six patients had been well and healthy all their lives, while three gave a history of frequent colds. One had "bronchitis" every few months. Fair health was noted in two cases. Six of the twelve cases were breast-fed as infants. Four were breast-fed for a period of one to four weeks following birth. Two received artificial formulae exclusively.

Temperature.—The range of temperature on admission was between 97 and 102 degree F. Several of the patients developed temperatures much higher than this during their stay in the hospital. Four cases showed definite ante-mortem elevations.

General Appearance.—Three cases were well nourished and did not appear particularly ill when first seen. In all probability these were in the very early stage and, had not lumbar punctures been done, the true nature of the condition would not have been recognized until the delay of several days. Although the symptoms were vague in the early cases, we never failed to get a typical spinal fluid analysis. Frequently we have to differentiate tuberculous meningitis from epidemic encephalitis and anterior poliomyelitis in the early stages. Examination of the spinal fluid will always help and in many instances make the

diagnosis for us. In a study of the spinal fluid in these three diseases, Wilcox and Lyttle[3] found that tuberculous meningitis and epidemic encephalitis have a constant and definite deviation peculiar to each of them, and that in the case of anterior poliomyelitis there is no deviation from the normal. Consequently, the spinal fluid findings have a certain diagnostic value. Four cases were acutely ill and lethargic, while three were well nourished but desperately ill. No case was in coma on admission, but this condition developed three to twelve days from the onset of illness.

Fontanelles.—In those patients whose fontanelles were open, bulging was noticed in two.

Heart and Lungs.—The heart was normal in every instance. Two patients had sufficient signs in their chests to warrant a diagnosis of pulmonary tuberculosis while two other cases had suspicious chest signs. The eight remaining cases had negative chests so far as could be determined by physical signs. Of those who were old enough to co-operate in the examination, a suggestive D'Espine's sign was elicited in two, the tracheal whisper being heard to the third and fifth dorsal spine, respectively. Respiration was regular in eight and irregular in four cases.

Abdomen.—The scaphoid abdomen was observed in three cases. Enlargement of the liver was noted in four and normal in eight cases. Palpable spleen was noted in three cases.

Nervous System.—The information obtained from a through examination of the superficial and deep reflexes gives us the best clue as to the true nature of the condition with which we are dealing. Of course, we must appreciate the fact that the presence or absence of certain reflexes depends on the stage of the disease. In the early stage the reflexes are present and much can be learned from their behavior.

The following reactions were observed at the time of the initial examination:

Neck		Patellar		Kernig's	
Stiff	5	Normal	4	Absent	10
Normal	7	Absent	2	Present	2
		Hyperactive	6		

Brudzinski's		Babinski's	
Absent	4	Absent	9
Present	8	Present	1

The pupillary signs were as follows:

Normal in reaction, size and shape	1
Reaction sluggish, size equal	4
Reaction sluggish, size unequal	2
Irregular and immobile	2
Sluggish and dilated	1
Strabismus (developed with onset of meningeal involvement)	2

The reaction of the pupils constitutes, in my opinion, one of the most important signs by which we have to make a correct diagnosis in tuberculous meningitis. It happened that in this series three or four cases were diagnosed almost entirely by the nature and reaction of the pupils. In the early stage a slightly sluggish reaction may be the only abnormal feature observed, but, later, in the disease, unmistakable signs will nearly always be present. Every case in this series showed pupillary changes which were abnormal. In the later stages the widely dilated and often irregular pupils are quite diagnostic.

Tache Cérébrale.—The tache cérébrale was positive in seven cases and negative in five.

Associated Diseases.—One case presented a marked degree of rickets while three had pulmonary tuberculosis. One other patient had miliary tuberculosis and developed meningeal involvement while in the hospital.

Duration of Disease.—The shortest time existing between the onset of symptoms and death was five days. The longest duration was eighteen days. The majority of the cases went two weeks before the inevitable termination came. Kerley[4] mentions a case which lived six weeks after the onset of symptoms.

Intradermal Reactions.—In performing the intradermal tests, one-twentieth and one-tenth milligrams of O. T. Tuberculin was injected intradermally in infants and children respectively. The site of injection was observed daily for a period of five days, and, if negative, on the fifth day the dose of tuberculin was doubled and the child observed for five more days. At the end of the observation period, eight cases showed a positive reaction and four were negative. The negative reactions could be explained in either of two ways: First, the child's resistance had been so reduced by the chronic process elsewhere in the body that he lacked the fight, so to speak, to produce a reaction to the tuberculin. Second, a massive overwhelming infection may have prevented the reaction from becoming positive.

Leucocytes.—One case had a white cell count of 6,000, of which 52 per cent were polymorphonuclear leucocytes and 48 per cent small lymphocytes. Incidentally, this case had the highest percentage of lymphocytes in the series. The remaining cases showed a leucocytosis ranging from 12,000 to 26,000, the average

being 16,498 per c.m., with an average polynucleosis of 69.6 per cent. If white cell counts are done every few days it will be noticed that as the disease progresses toward the fatal termination, the leucocytosis becomes greater, as well as the percentage of polymorphonuclear leucocytes.

Morgan[5] concludes that there is a definite relationship between the intensity of the tuberculin skin reaction on the one hand, and the total leucocyte count and polymorphonuclear percentage on the other. Diminution in the former is usually accompanied by an increase in the latter, both being an indication of a failing resistance by the body to the tuberculous infection. Of the three cases with negative intradermals in this series, each had an average leucocytosis of 21,460. All three cases were above 19,000.

A study of the foregoing table reveals several interesting facts. At a glance, one will notice the relatively low values of the sugar concentration in the cerebrospinal fluid as compared with those of the blood. Ordinarily, the sugar concentration of the cerebrospinal fluid should be approximately one-half of that of the blood.

Schloss and Schroeder[6] found that a large proportion of cases of tuberculous meningitis show a decrease in the sugar content of the cerebrospinal fluid at some stage of the disease, while a few cases will show a normal value at all times or slightly diminished. In this series every case showed a decrease in the sugar concentration as compared with the normal.

The qualitative (Benedict's) test for sugar was negative in nine cases and positive in three. Every case showed positive tests for albumin and globulin.

The cell count ranged from 60 to 550 cells per cmm. The predominating type of cell was the small lymphocyte. In no instance was the fluid distinctly cloudy.

Another interesting fact demonstrated in the series was the diminution of the spinal fluid chlorides. The entire group of cases, with only one exception, showed chlorides ranging from the lower limit of normal to subnormal values of a considerable degree. There was a general increase in the protein values, a fact which was of much diagnostic importance.

The series was evenly divided according to sex, each having six cases.

Recovery of Organisms.—The tubercle ba-

SPINAL FLUID AND BLOOD ANALYSIS

* = Positive.

No.	Date	Age	Sex	SPINAL FLUID							BLOOD						
				Pressure	Color	Cell	Albumin	Globulin	Benedict	Sugar	Chlorides	N	NPN	Protein	Sugar	Chlorides	Cell Vol.
1	1-14-26	13 Mo.	Fe	***	Clear	60	***	***	*	35		35	13	138			
	1-16-26	"	"	*	Clear	110	***	***	*			58	20	231	109	597	37
2	2- 8-26	8 Mo.	M	**	Clear	275	***	***	*	50	667	34	11	144			
	2- 9-26	"	"	**	Clear	260	**	***	0	45	668	44	16	175	164	538	42
	2-11-26	"	"	Nor	Clear	165	***	***	0	18	655	33	8	169	94		
	2-13-26	"	"	Nor	Clear	370	***	***	0								
3	3-15-26	4 Yrs.	M	*	Clear	180	***	***	0	18	661				100	550	
4	4- 3-26	3 Yrs.	M	*	Clear	190	***	***	*								
	4- 4-26	"	"		Opal	200	***	***	0	25		96	22	463			
5	4- 4-26	7 Yrs.	"	Nor	Opal	205	***	***	0	20	620	57	17	250	118	527	35
	4- 6-26	"	M	***	Clear	180	***	***	0								
	4- 8-26	"	"	**	Clear	270	***	***	0	15							
	4-10-26	"	"		Opal	150	*	*	0	47	644	34	14	625			
	4-12-26	"	"	Nor	Opal	550	***	***	0	28		150	100	313	143		43
	4-13-26	"	"	Nor	Clear	150	***	***	0	30	628	80	39	110	87		32
6	4-12-26	9 Yrs.	Fe	*	Opal	160	*	*	0	31							
	8-26	"	"	*	Clear	140	*	*	0	40		59	235	225	106		
	4-12-26	"	"	Nor	Clear	120	**	**	0	33	573	16	8	80	118	433	42
	4-14-26	21 Yrs.	Fe	**	Clear	850	**	**	0								
8	4-28-26	20 Mo.	M	**	Opal	120			0	20	690	43	20	144	118	527	
9	5-31-26	2 Yrs.	M	**	Clear	68	*	*	0	37	714						
	6- 2-26	"	"	Nor	Clear	60	*	*	0	14	620	57	7	313	120	528	33
10	6-10-26	7 Mo.	Fe	**	Opal	160	**	**	0	21	655	61	12	303	Cistern Tap		
	6-12-26	"	"	Neg.	Clear	240	**	**	0								
11	6-24-26	4 Mo.	Fe	**	Clear	350	**	**	0	32		26	14	75	105	536	45
12	7-13-26	7 Yrs.	Fe	**	Clear	300	**	**	*								

cilli were found in only three cases. This low percentage in all probability was due to a lack of persistence on the part of the technician in examining the smears. In the great majority of cases, the organisms are present in the spinal fluid and will be found providing sufficient time is spent in looking for them. Hemminway,[7] in studying 138 cases, found the organisms in 135.

Mortality.—The mortality was 100 per cent. This seems to be in accord with the results published by other writers on the subject. Meyers[8] reports a similar mortality rate from a study of 105 cases.

X-Ray.—The X-ray of the chest showed two cases of miliary tuberculosis and two of pulmonary tuberculosis.

Conclusions

1. The great majority of cases occur under three years of age.
2. The duration of the disease was less than three weeks.
3. The disease is equally divided between the two sexes.
4. All patients died in coma, the appearance of which ranged from three to twelve days from onset of illness.
5. A leucocytosis is nearly always present in the disease and it increases as the disease progresses toward the fatal termination.
6. The spinal fluid furnishes the criteria for a correct diagnosis in the early stages as well as the late stages. A clear spinal fluid showing low sugar and chlorides with an increase in the protein is more or less pathognomonic of tuberculous meningitis.
7. The tubercle bacilli are usually found if sufficient time and energy are spent in searching for them.
8. Mortality is invariably 100 per cent.

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217 *East 176th Street.*

THE NECESSITY FOR A CAREFUL PREOPERATIVE MEDICAL EXAMINATION OF SURGICAL PATIENTS, AND THE THE RECOGNITION OF POSTOPERATIVE MEDICAL COMPLICATIONS.*

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The notable progress made in surgery during the past few years has been both the cause and the result of a greater precision in diagnosis, and the development of better operative technic. The safety of surgery as a procedure is so encouraging that we are daily employing this method of relief not only to rescue a threatened life—an emergency procedure—but also for the relief of many forms of chronic disability—deliberative surgery. In proportion as the laity recognizes these facts do they enter the hospital for surgical treatment with much less of foreboding.

Coincident with the progress made in surgery, have impressive advances been made in all branches of medicine. The basis for these advances in both surgery and medicine has been a more thorough understanding and utilization of the fundamentals of medicine. We have learned from physiology that no part of the human organism is independent of the whole, but that the function of each organ is definitely related to the function of other organs in the maintenance of health, and that pathological physiology may precede organic change. We have learned from pathology that the structure of an organ changed by disease results in a perverted function of varying degree, transient or progressive.

The advance in surgical diagnosis has rendered accessible organs and systems formerly regarded as inaccessible. This has resulted in a definite specialization, requiring for its practice a high degree of technical skill, elaborate equipment, and concentrated attention in a

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limited field. For the utilization of the achievements attained in these specialties, it is becoming more apparent every day that a physician must be familiar with these achievements if a patient is to reap the benefit from the great advances. Just in proportion as this knowledge is assimilated by the profession, is it possible to have a correlation of these various activities for the benefit of the patient.

This newer knowledge requires that the patient be viewed from many angles. Not only must we locate the pathology, but we should attempt to determine to what extent the bodily activities as a whole have been affected by the abnormal condition. As the medical practitioner will never be able to carry out the technical details of surgery or of the surgical specialties, so the surgical specialists should not be expected to be familiar with or capable of applying the details of medicine or of the medical specialties. It is often necessary, therefore, to subject the patient to unusual examinations before we can arrive at a complete diagnosis. Should the case prove to be a surgical one, other facts must receive consideration.

The question becomes not merely the indication for surgical treatment, but an evaluation of the patient's physical and mental condition before being subjected to a surgical procedure. The evaluation is particularly applicable from the standpoint of the cardio-renal system, for without a reasonable assurance of the functional efficiency of the heart and kidneys, the advisability of a deliberate operation may be questioned. An attempt should be made to determine the status of these organs by all means at our command. Too frequently the surgeon takes for granted that the physician with whom the case originated has already carried out these studies, and will live up to the hospital requirement by having a casual examination made by the interne just before the patient is carried to the operating room. The surgeon must be satisfied that these points have been carefully covered by a competent man before he can rid his own conscience of personal responsibility in the event that the post-operative course of the case is attended by medical complications which may have been predicted prior to operation. The development of a careful operating technic, the training of an operating team, the presence of a skilled anæsthetist, and the application of correct post-operative surgical treatment may be completely negatived by an unfortunate or too hasty acceptance of an unsuitable deliberative surgical case. In the future we must look for advance in surgery, not so much along the line of improved methods in operative technic, as in a wiser application of knowledge gained from a more comprehensive pre-operative study of the patient. We believe operative mortality can be further reduced by a careful medical supervision before surgical procedures are undertaken, delaying the operation if necessary until the patient is in the most favorable condition to pass smoothly through the operative and post-operative periods. Surgery has been made safe for the patient; now let the patient be made safe for surgery.

Surgical patients may be divided into two groups—the emergency and the deliberative. In the emergency group there is not sufficient time for a thorough examination; the urgency of the need demands immediate operation.

The majority of patients come under the deliberative group, where surgical haste is not essential. A reasonably good surgical history should reveal the presence of such gross conditions as diabetes, hyperthyroidism, and diseases of the prostate gland, but equally important and more insidious are the complications that may accompany anemia, asthenia, obesity, inanition, dehydration or acidosis.

A more careful inquiry might bring to light the history of an infection in early years, such as rheumatic fever, scarlatina, typhoid fever, or chronic bacterial foci, all notorious for their effect on the heart, blood vessels and kidneys. Low grade progressive changes in these organs may be present without symptoms until functional tests suggest the presence of actual pathologic change, and it is upon the necessity of carrying out this particular observation that I would place the greatest emphasis. In this same category would I place the person of middle age or more, in whom, without a history of a direct cause, degenerative changes have taken place or are beginning to occur. Not infrequently in patients of forty-five years we can elicit a history of dyspnea, palpitation, precordial or thoracic pain on slight exertion, transient edema about the ankles, insomnia, fatigability, periods of depression, vertigo, a sense of fullness in the cranium. The clinician who properly evaluates symptoms may deduce from them evi-

dences of cardiac weakness or vasomotor instability, which perhaps may precipitate circulatory embarrassment if the operation is undertaken before the patient is adequately prepared.

By what means are we to determine the efficiency of the vascular system?

1. The size of the heart as indicated by its tranverse diameter, ascertained by percussion and if necessary by X-ray, also any change in retrosternal dullness, which is especically suggestive of aortic disease, luetic or sclerotic.

2. The most important thing to determine is the efficiency of the heart muscle. The attention should be concentrated particularly upon the character of the first sound at the apex. As the cardiac muscle supplies the force which maintains the circulation, the quality of the sound made by the muscle during contraction is a good index of the state of the muscle. When changes occur in the heart muscle, there is a change in the quality of the first sound. As the muscle element of the first sound diminishes or approaches in character the second sound, can we reasonably infer that the myocardium has suffered some change. The functional effect of exercise should then be noted.

It may not be amiss to mention the significance of an irregularity of the heart and tachycardia in evaluating a surgical risk.

Irregular heart action has occasioned much pertubation to many patients. In young persons an extrasystole generally is of no significance. The mental state preceding an operation often induces an irregularity which had not been previously observed. Extrasystoles are frequently found in normal hearts, but they may be of much significance in a person of middle age or older. Detection of an irregularity indicates the necessity for a further study of the heart to determine its significance.

Rapid heart action probably attracts more strongly the attention of the surgeon than anything else in examining the circulatory apparatus. If due to psychic causes, as is often the case, it should not cause apprehension. When the rapidity persists, it may, like an arrhythmia, be the indication of a degenerative process or an intoxication from the thyroid, or tuberculosis, or a focus of infection.

An examination of the vascular system is not complete until the pulse has been studied, observing its volume, rate and rhythm and the manner in which it is sustained.

3. Blood pressure readings give important information. Especially significant is an increased diastolic reading, as this represents the pressure in the arteries between the heart beats. Just in proportion as this is persistently above the normal figure does it suggest permanent change in the vessel walls, and a continuing increased demand on the left ventricle. As the functional efficiency of all parenchymatous organs depends upon the rate of flow rather than on the volume of blood in an organ, a study of the pulse pressure gives us an approximate index of the functional possibilites of an intact organ, and a reasonable inference as to a much lower function in proportion as the organ is the seat of organic change, for instance, the kidney. An intra-ocular examination to determine the condition of the retinal vessals is an important feature in the general examination of the patient.

4. As the kidneys are a unit of the circulatory system, they must be considered along with the heart and blood vessels. Their functional efficiency must be determined by means other than the routine urinalysis. We must remember that a single normal specimen of urine does not preclude the possibility of a lesion existing in the urinary tract. An examination of the twenty-four hour urine is preferable. When there is any doubt about the integrity of the kidney, our information should be supplemented by a blood urea examination, the phenolsulphonphthalein test, and the fixation of the specific gravity.

5. It is as important to make a red cell count and hemoglobin estimation before operating as it is to make a leucocyte and differential count. The existence of a moderate anemia does not contraindicate operation if the general condition of the patient is otherwise good, the anemia not progressive, and its cause probably apparent. Should a progressive anemia be not due to the condition for which surgical relief is sought, the cause of the anemia should be understood before deliberative surgery is undertaken. In the blood examinations, a study of the size and staining peculiarities of the red cells should be noted in all cases of severe anemia.

While we are endeavoring to make the pa-

tient safe for surgery, it is well to bear in mind a few conditions that will sometimes cause post-operative circulatory disturbances in cases where the heart is apparently normal prior to the operation. They may originate in the mental attitude of the patient preceding the operation, or be brought about by the manipulation during operation, or for some unknown reason follow the operation. We might consider first the effect of fear which may, if prolonged, cause a depression of the vital functions.

Fear is present to some extent in the majority of patients confronted with an operation. In some cases the apprehension assumes such proportions as to become a real obstacle to the operation. There is a discharge of energy not consumed by muscular activity in fight, flight or fright. We do not know whether morphological changes with exhaustion of the vital centers of the brain occurs, though we have observed patients in whom the element of fear predominated, die following the operation without obvious cause. We might assume that fear combined with trauma produced exhaustion, the heart became fatigued, and the blood pressure fell, due to a diminished cardiac output and vasomotor relaxation. A picture of circulatory collapse is presented, not unlike that of shock.

The term surgical shock is applied to a complex of alarming symptoms developing during or immediately following an operation. Exposure and trauma of the abdominal viscera, even without extensive hemorrhage, may induce shock. The mechanism by which shock is produced is complicated. Probably several factors are responsible, such as the liberation and absorption of histamine from the traumatic area, as set forth by Cannon, or the failure of the veno-pressor mechanism, as enunciated by Henderson. As the splanchnic vessels dilate, the blood pressure decreases, and the heart rate becomes rapid and feeble. The vasomotor center increases in tone, thus attempting to redistribute the blood, though, when shock is severe, this center may not respond fully to meet the demands.

The endocrine glands have been mentioned as factors in producing shock, the adrenal gland especially being mentioned in this connection. Some physiologists claim there is an increased secretion of epinephrine in emotional states; others have demonstrated that in conditions of low blood pressure there is an increased amount of epinephrine in the blood. Probably the suprarenal glands are factors in the complex condition of shock, but it is difficult to determine to what degree they participate as primary agents in producing the condition, or how much they are affected by the low blood pressure and the changes incident to the condition itself.

Whatever the causes of shock may be, its manifestations are pronounced, especially the disturbance in the circulatory system. The rapid and weakened heart is due to improper diastolic filling which results from the small quantity of blood in circulation. As the volume of circulating blood becomes progressively smaller, the heart muscle continues to weaken, consequent upon the failing blood supply through the coronary vessels, and this again through the curtailment of blood in actual circulation.

In spite of many prophylactic measures, pneumonia as a post-operative complication still occurs. It seems to occur more frequently in cachetic persons and in the elderly in whom pulmonary changes, such as emphysema, have taken place. When it occurs, there is an added toxemia, the manifestations of which may vary. Adequate supportive measures must be employed. The effectiveness with which the heart is maintaining the circulation may be determined by its size, the character of the sounds, its rate and rhythm, and the quality of the pulse.

Massive collapse of the lung occasionally occurs after an operation. The early symptoms are similar to those of pneumonia, but the ease with which a collapse is diagnosed, combined with the knowledge that there is no invasion of the blood stream by organisms, lessens our apprehension. The disturbance in the heart action soon subsides.

Conclusion.

Surgery is not merely a question of operating. The surgeon must possess skill, but more than skill in performing an operation is necessary. It is his duty to know the condition of his patient before subjecting him to an operation. The proper evaluation of the general condition is as important as the indication for surgical treatment. A comprehensive study should be made of all patients prior to anticipated surgical procedures, for only by this

means will a too hasty acceptance of an unsuitable risk be prevented. By exercising greater care in preparing all patients so that the anxieties, the discomfort and the ordeal incident to the operation will fall as lightly as possible upon them, will elevate surgery to a higher plane.

Stuart Circle Hospital.

WHY A COUNTY MEDICAL SOCIETY.*

By C. B. GREEAR, M. D., Honaker, Va.

With my attempt to present the subject of this paper, I will first ask you to kindly accept it in the spirit in which it is written—that of an attempt to inspire each of us, and myself in particular, with a more active interest in placing Russell County Medical Society on a sound and stable basis. With this object in mind, I trust each of us will do our best to co-operate with our leadership at all times.

While men yet wandered through the jungles of antiquity with big sticks, there were born in the world certain influences which resulted in the building of the highest form of civilization known to mankind—more especially that of *fellowship*. About the same time certain other births took place, the most detrimental of all being ignorance, superstition, suspicion, etc. The birth of these latter instincts was the direct result of conditions then existing in the world. Down through the ages these instincts have been transmitted from parent to child and to this good day they have not been entirely eradicated from our minds and lives, making unpleasant obstacles for us to overcome.

During the birth and infancy of civilization the present primitive instincts ran rampant in the lives of each individual. Combats with natural laws and animal life then existing, and with antagonistic clans, all doubtless combined to place man on the defensive. In each effort to place civilization on a higher and more sane basis, these prehistoric inhibitory intuitions have continued to make themselves manifest as a result of former environment and heredity, the impress of which it will yet probably take ages to eradicate entirely.

Of all the instincts born during antiquity, that of *fellowship* has done more to advance the cause of civilization than all other factors combined. Without fellowship, civilization would not survive over night; and it has not yet been developed to the highest state of perfection possible, in order that peace on earth and good will to men may obtain in the world.

Upon this principle of fellowship men have tamed the most ferocious beasts. There would be no domestic animals to serve the purposes of man were it not for his ability to eradicate fear from animal life. Trainers of the wildest animals say the reason why they fight is caused by their fear of each other, and more especially are they afraid of men.

Fellowship and its twin, brotherhood, go hand in hand, and are intimately allied with all efforts to better the condition of mankind. Without these, the world would soon be in a state of chaos. We hear right much of our relationships with the monkey family, the missing link, etc. I do not happen to be in position to substantiate the claim of either, but one thing is certain, we physicians act very much like monkeys in our contacts at times. We will not do to suit the other fellow and the other fellow, consistently refuses to do to suit us, and thereupon hangs a monkey "tale". Our use of this monkey instinct has retarded the wheels of progress more than it would be humanly possible to estimate.

So much for the monkey business. One thing is certain,—civilization cannot endure without fellowship; fellowship cannot endure without brotherhood, and co-operative efforts. The World War very clearly demonstrated might was not right, but through the brotherhood and fellowship of men and of nations, civilization was saved for the universal good of all. Precept and persuasion have done more to really inspire men to do right than all the wars that have cursed Christendom.

The central thought I wish to convey is: The Russell County Medical Society is dependent on *fellowship;* and without fellowship we exhibit relics of chaos and confusion. Our greatest immunity against decay, stagnation and ultimate degeneration as a medical fraternity is produced by a healthy and active interest in our County Medical Society. If we are to keep step with the important events of the world's progress in medicine, we must meet, inspire and permit ourselves to be inspired by our fellow men. Were the outstanding leaders of the medical fraternity to withhold their knowledge and inspiration from

*Read before the Russell County Medical Society, March, 1927.

the world, disease and pestilence would soon exterminate the human family. Large numbers of physicians have sacrificed their time, their health and their lives that we might be afforded knowledge in the science of treatment and preventive medicine, yet we "mossbacks" sit here in the sticks too dilatory to attend an occasional meeting of our County Medical Society. The shame of it is a stigma on the escutcheon of each of us, and I for one confess to my part in this dereliction of duty.

The future of the medical fraternity depends upon leadership, leadership must depend upon co-operation, and co-operation must have its incipiency in the rank and file of the entire profession. Random and promiscuous efforts never do more than to blaze the trails. It takes organization and concerted effort to produce results. With the countless cults and isms, like mush-rooms springing up on a sheep path over night, to deal with, and the fake advertising done by these people, there is left something for physicians to think about.

The following are some of the leading reasons why we should function as a County Medical Society:

It will make us better men to meet and continue to get more thoroughly acquainted with each other.

It will make us broader and more capable as physicians to meet and exchange opinions. If we differ, let us do it in a friendly manner, and thereby refuse to kill the goose that laid the golden egg.

It will increase the respect and confidence of the public in the medical profession as a whole and in us as individuals.

It will sharpen our business acumen and help us to forget the problems that wear and rasp on the nerves of men.

It will broaden our vision of usefulness and prevent us from becoming prematurely old and self-conscious.

Last, but not least, it will help us to cope with problems ever confronting the medical fraternity, such as that of state medicine, the oncoming waves of fictitious advertising of nostrums, cults and the numerous pathies of divers kinds too numerous to mention, but always flourishing.

THE FREQUENCY OF A TUBERCULOUS INVOLVEMENT OF THE RIGHT LUNG AS DETERMINED BY PHYSICAL EXAMINATION AND X-RAY FINDINGS.

By L. M. HINES, M. D., Sanatorium, Va.
Blue Ridge Sanatorium.

Since the discovery of the tubercle bacilli by Robert Koch in 1882, the medical world has been in a constant turmoil, endeavoring to learn all there is to know about this great scourge, not only the clinical aspect, but the best treatment and to find a cure, if possible. All during this time, great interest has been aroused by the frequent inquiries as to which lung seems to be first involved clinically, most extensively, and why? We have been taught that the right lung was usually the first to be involved, but I can find no definite proof given anywhere in the literature that will confirm this statement. Of course, to determine this, many factors must be considered.

This report deals with an analysis of 850 cases that entered Blue Ridge Sanatorium and were completely worked up from every available angle. The two factors we consider most important are physical examination and X-ray. Of course, the history, blood work, urine analysis, sputum examination, etc., are taken into consideration; but all these cases had definite signs of tuberculosis on physical examination and were confirmed by X-ray; all other cases not definitely diagnosed were omitted.

In making a physical examination, there are certain anatomical differences which suggest abnormal signs in the right lung as compared with the left, and these should be constantly in the mind of the examiner that he may guard against such errors. They are as follows:

1. The right lung as a whole is larger than the left.
2. The right bronchus is larger than the left and closer to the chest wall anteriorly.
3. The apex of the right lung may extend higher in the neck than the left.
4. Normally, there is more broncho-vesicular breathing in the right apex than in the left.

Admission examinations were made and all cases classed according to the outline adopted by the committee on classifications of The National Tuberculosis Association. Then, all cases were X-rayed within one week after admission to the Sanatorium, and in most cases

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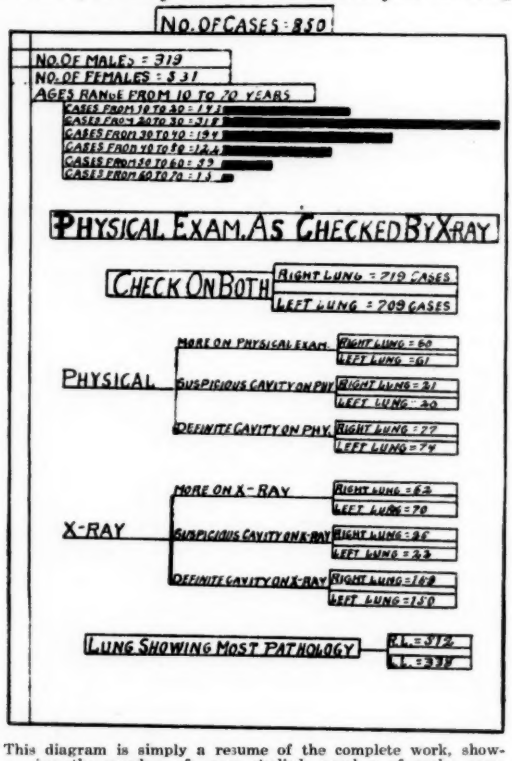
there was not more than twenty-four hours difference between the physical examination and the X-ray stereo-films which were read by the Medical Staff independent of the physical findings.

Out of the 850 cases reported, 531, or 62.5 per cent, were females, and only 319, or 37.5 per cent, were males. This does not mean there is more tuberculosis in females, because we have more applications for females at Blue Ridge than we do for males, and therefore have a greater capacity and more accommodations for females. There is perhaps just as much, if not more, tuberculosis in males, but in most cases they are the "bread-earners", and it is a greater sacrifice for them to stop work and go to a Sanatorium to take the "cure", so they continue to work just as long


NO. OF CASES: 850
NO. OF MALES = 319
NO. OF FEMALES = 531
AGES RANGE FROM 10 TO 70 YEARS
CASES FROM 10 TO 20 = 171
CASES FROM 20 TO 30 = 318
CASES FROM 30 TO 40 = 194
CASES FROM 40 TO 50 = 124
CASES FROM 50 TO 60 = 59
CASES FROM 60 TO 70 = 13
PHYSICAL EXAM. AS CHECKED BY X-RAY
CHECK ON BOTH
RIGHT LUNG = 719 CASES
LEFT LUNG = 709 CASES
PHYSICAL
MORE ON PHYSICAL EXAM.
RIGHT LUNG = 60
LEFT LUNG = 61
SUSPICIOUS CAVITY ON PHY.
RIGHT LUNG = 21
LEFT LUNG = 20
DEFINITE CAVITY ON PHY.
RIGHT LUNG = 77
LEFT LUNG = 74
X-RAY
MORE ON X-RAY
RIGHT LUNG = 82
LEFT LUNG = 70
SUSPICIOUS CAVITY ON X-RAY
RIGHT LUNG = 26
LEFT LUNG = 23
DEFINITE CAVITY ON X-RAY
RIGHT LUNG = 162
LEFT LUNG = 150
LUNG SHOWING MOST PATHOLOGY
R.L. = 312
L. = 338

This diagram is simply a resume of the complete work, showing the number of cases studied, number of males compared to number of females. The age chart, showing when clinical tuberculosis is most prevalent, and the comparison of the physical findings with X-ray, cavities, most pathology, etc.

as possible, and frequently, when they do stop and give up, the disease has advanced beyond control, and they spend their last few months at home instead of at the Sanatorium.

You will notice by referring to the accompanying age chart that clinical tuberculosis as seen in this Sanatorium is more prevalent between the ages of 20 to 30,—with 318 cases, or 37.4 per cent. There are perhaps many reasons for this. I shall mention only a few:

1. This is the age of dissipation.
2. "Stress and strain of modern life".
3. Young people just starting out in life and business overwork, trying to make good, become nervous, worried and rundown.
4. Irregular habits.
5. Inadequate clothing.
6. Pregnancy, long labor and long lactation in females.
7. All the above mentioned factors tend to lower the body resistance and thus allow tuberculosis to gain a foot-hold.

After the age of 30 to 35, there is a steady decline in the amount of tuberculosis found; from 30 to 40, 22.8 per cent; from 40 to 50, 14.4 per cent; from 50 to 60, 6.8 per cent; and from 60 to 70 only 1.8 per cent. This is because older people live a more regular life, take better care of themselves, and there has usually been a certain amount of immunity developed in all cases.

By combining the physical examination with the X-ray, we found the right lung to be more extensively involved and to show the oldest lesions in 512 cases, or 60.2 per cent, while the left lung was involved more in only 338 cases, or 39.8 per cent. But as to why the right lung is involved more frequently than the left is problematic,—much research having been done along this line by some of the German scientists, none of which has been accepted. The fact that in this series 60.2 per cent were on the right side is significant and makes us wonder more as to its cause. Would it not be worth while to reason, if the greatest number of foreign bodies entering the lung by aspiration go into the right side, and if we accept the present theory of Gohn that the majority of tuberculosis is contracted through the inhalation route, that tubercle bacilli breathed in might lodge more frequently in the right lung than the left, and in this way account for greater involvement on the right side? Another possibility is that we have more people who are right handed and the increased amount of exercise and motion of the right shoulder may increase the suspectibility of the right apex. We assume, of course, that the reason

why the apices are usually the first to be attacked is: Because of the relative stagnation of the lymph in the upper lung and because of inefficient respiratory movements and early pleural adhesions allowing concentration of the tuberculous poisons. Again, more people sleep on their right side, and the relative change from an anemic state at night to a hyperemic state during the day may have some significance. However, these are merely suggestions. On the converse, we do know that when the left lung is involved, it is usually of a more serious nature. This is shown by a recent review of our pneumothorax cases—60 per cent of which were on the left side.

One of the interesting things in this analysis and review is the frequency in which cavities were found on X-ray that had been overlooked on physical examination. The tables show that only about half of the cavities were found on physical examination that showed up on X-ray. There are certain conditions which must exist before a cavity can be diagnosed by physical means:

1. Location:—Naturally, if superficially located with thick walls surrounding it, or an area of consolidation, the signs would be exaggerated, but if deep seated with normal lung surrounding it, the signs would be difficult to elicit.

2. Surroundings:—The signs will vary according to the thickness of the surrounding wall, amount of consolidation, etc.

3. Contents:—(a) Empty.—If empty, with a rim of scar tissue which is fairly elastic, there is no trouble in determining its presence.

(b) Full.—If a cavity is filled with debris, the signs may be overlooked.

4. Condition of bronchi leading to cavity:—If bronchi be stenosed due to fibrous tissue, etc., the physical signs would not be elicited.

5. Size:—A very small cavity may be found if superficially located, while one of considerable size may be overlooked when deeply seated, especially in the lower lobe, or under the shoulder joint.

The physical signs of a cavity are:

1. Percussion:—(a) If superficially located and not too much density overlying it, we usually get dullness, though rarely we may have hyper-resonance.

(b) "Crack-pot resonance", if large.

2. Cavernous or amphoric breathing.

3. Whispering pectoriloquy:—This is one of the main diagnostic signs, and, when present, it means the cavity is empty; it usually has a thin wall of fibrous tissue surrounding it, and is in close proximity to the chest wall and communicates with one or more bronchi.

4. Gurgling or consonating rales:—Rales may or may not be heard according to the activity of the case, but, when heard, they are usually gurgling or consonating, and have metallic character, heard more distinctly when the cavity is fairly dry.

5. Post-tussive suction:—This sign, when present, may be considered diagnostic. It comes with the expiratory cough and is heard as an echo or rebound of the cough sound. Its mechanism is thought to be due to the vibration of the walls of a cavity.

In this series of cases, before a cavity was definitely diagnosed, either whispering pectoriloquy or post-tussive suction were present; if not, then at least two of the remaining signs were present.

There are certain cases that are classed as *suspicious* of excavation, and by this we mean the above signs are indefinite. One or more of the signs may be suggestive, but they are not conclusive.

The pathology from an X-ray standpoint may be considered from two angles—*extent and character*. The disease may involve an entire lung, being soft, flocculent and mottled in character, with little or no tendency to fibrous tissue formation and calcium deposit. Such a process, while extensive, may be of only short duration. However, on the other hand, you may find in the opposite lung, or even in the same lung, large calcified nodes, heavy deposits of fibrosis, or a thick wall cavity, all of which suggest (but does not prove) the site of the oldest lesion. It is not an easy matter in such cases to determine the oldest lesion. A lesion having a localized area of lessened density or an annular shadow well circumscribed and having definite borders, was called a cavity on X-ray, the size usually to exceed 1 cm. in diameter. Other annular shadows being localized but not having definite borders were classed as *suspicious*. We might also put in this class certain consolidated areas, having a rarefied "honey-combed" or punched-out center.

Perhaps it would be interesting to mention some experimental work which is being con-

ducted at the Sanatorium at the present time. We have a record of four cases which were X-rayed after death. The lungs were then removed, inflated and stereo-plates made. They were injected with 15 per cent sodium iodide solution and X-rayed again; then the lungs were carefully dissected, and the autopsy findings confirmed each cavity that had been diagnosed by X-ray, with one exception, and this had been called a "localized area of pneumothorax" on X-ray, but proved to be a very large cavity on dissection. The location was not considered in this tabulation, but we believe the greatest number of cavities are found in the upper lobes, with the right predominating.

Conclusions

1. The right lung is anatomically different from the left as to the normal physical signs it may produce.

2. 62.5 per cent of the cases reported were females and only 37.5 per cent males.

3. From the class of cases admitted to this Sanatorium, clinical tuberculosis is more prevalent between the age of 20 to 30, 37.4 per cent being in this age. There is a steady decline after this.

4. The right lung was more extensively involved and apparently showed the oldest lesion in 60.2 per cent of the cases; left in 39.8 per cent.

5. Only 50 per cent of the cavities found on physical examination as shown byX-ray.

6. More cavities were found on the right side, but more indications for pneumothorax on the left.

THE TREATMENT OF ABNORMAL OBSTETRICS AT THE LYING-IN HOSPITAL OF NEW YORK CITY.*

By HARRY SUTELAN, M. D., Norfolk, Va.

At the Lying-In Hospital of New York City the parturient women are examined around the seventh month of gestation. At that time a complete physical examination is done and pelvic measurements are taken. The pelvic measurements include the usual external measurements, the interspinous, intercrestal, antero-posterior, and the two Beaudelocques, and the internal, which includes the height of the promontory, the diagonal conjugate and the transverse diameter of the outlet or the distance between the ischial tuberosities. This diameter is not exactly measured but it is taken as normal if the average fist is insertable between the ischial tuberosities. Simultaneously, a complete history including previous labors and a history of rickets is taken. If the examination reveals some abnormality, the chart of that woman is marked with a red pencil stating the type of abnormality, whether at the inlet or at the outlet. A pelvis with a conjugate vera below 9 c. m. is marked as contracted.

After this preliminary examination the pregnant woman is told to report every two weeks with a specimen of urine. At these times the blood pressure is taken, the height of the fundus measured, the fetal heart counted and the presentation and position of the fetus is noted, also whether engaged or non-engaged.

The woman is thus cared for until she goes into labor. At that time she is allowed to stay in labor for some time. Those cases whose charts are marked with a red pencil are not examined vaginally, but all the examinations are abdominal and rectal. Of course those women whose pelves are normal are examined vaginally every two hours and the fetal heart counted each time. The length of time when women with contracted pelves are allowed to stay in labor before interference is instituted will depend upon the degree of contraction and whether she is a primi- or multipara.

If there is a history of previous fairly easy labors she is allowed as much as twenty-four hours before interference is instituted. This can be easily done with the aid of rectal anaesthesia which allays their suffering very much. The treatment to be instituted will vary according as to whether engagement has taken place or not.

By engagement is meant the passage of the greatest circumference of the fetal head through the pelvic inlet. In occiput presentations it is a question of two diameters of the fetal head passing through the two planes of the pelvis. Dr. Williams maintains that the fetal head engages with the sagittal suture in the right or oblique diameters of the superior strait. On the other hand, DeLee maintains that during engagement the sagittal suture lies in the transverse diameter of the superior strait. In either case the biparietal diameter must pass through the antero-posterior diameter of the superior strait.

There are three methods for determination of engagement:

*Read before the Norfolk County Medical Society, at Norfolk, Va

1. By abdominal palpation. The fingers of both hands of the palpator pass along the abdomen and by gentle manipulation the two poles of the fetal head are located. The fingers are passed downwards along these poles until the upper border of the symphysis pubis is reached. If the fingers of the two hands converge on reaching the symphysis pubis, then the antero-posterior diameter of the fetal head has not yet passed through; if they diverge as they approach the symphysis, then engagement has taken place.

The second method is by inserting the fingers of one hand into the vagina and locating one of the inferior posterior ischial spines. With one finger on the spine, the other finger is spread out to the place where the vertex of the head should be. If it touches the vertex of the fetal head, then the latter is on a level with the spines and the head is engaged.

The third method is available to use only after the cervix is fully dilated. The fingers of one hand are passed along the anterior parietal bone and if on passing up they ascend and then descend slightly or approach the mid-line, then the parietal bosses are already past the superior strait, but if the fingers do not approach the mid-line on passing up along the parietal bones, then engagement has not taken place. It should be noted that not all of these manoeuvres can be carried out on every patient. Continuous labor pains with concomitant rigidity of the lower abdominal wall may make uncertain the abdominal method. A hard and tense caput succedaneum may be mistaken for the bony vertex. But usually one of these methods ought to be available for the determination of engagement.

In primiparae, failure of engagement at the onset of labor should always suggest some abnormality. But in multiparae, engagement very frequently does not occur until the end of the second stage. Failure of engagement in multiparae may be due to several causes. A relaxed pendulous abdomen with atrophied abdominal muscles may delay engagement, by misdirecting the force of the uterine contractions. In such a case a tight abdominal binder will serve to straighten out the child and to give support to the rising uterus during pains.

Very frequently engagement may be helped by raising the patient's knees on her abdomen and pushing back on them during a pain. This serves to decrease the anterio-posterior diameter of the outlet and to simultaneously increase the anterio-posterior diameter of the inlet and one such pain may be sufficient to bring about engagement. It should be noted that immediately after you have secured engagement, then the woman should be placed with her legs in a horizontal position because with her knees raised the pelvic outlet is contracted and labor is impeded.

Failure of engagement may also be due to a faulty position. It is known that right occiput positions are much more frequent than it is assumed and they usually are posterior positions. A correction of this position may also help engagement.

In a multipara with the cervix fully dilated, membranes unruptured and head not engaged, the membranes should be ruptured and this helps engagement in a good many cases.

If the pelvis is not contracted or only slightly so and after a reasonable amount of time, interference is necessary, especially so if the condition of the mother and child begin to cause anxiety to the physician in charge. In such cases version is the most useful procedure to be adopted. Forceps on the floating head are brutal and are fraught with more danger than a version. On the other hand, I have not seen a ruptured uterus following a version.

The type of podalic version used is a modified Potter type.

The patient, having been completely anaesthetized, is placed in the lithotomy position. The bladder is catheterized, followed by injection of one dram 5 per cent argyrol. Anointed with tincture of green soap the hand of the operator irons out the perineum. The cervix is next attended to; if not completely dilated, it is slowly dilated by the Harris method until the fist can pass through it. Depending upon whether you have a right or a left position the right or the left hand of the operator is inserted into the uterus. If the membranes are still intact the hand of the operator is carried up between the membranes and the uterine walls until the feet of the fetus can be palpated through the membranes. At this point the membranes are ruptured. The feet of the fetus can be differentiated from the hands by the presence of heels on the former.

In passing up the uterus the operator must be careful of the presence of the Bandl's contraction ring. This must be carefully stretched until it is sure that it will not be an impedi-

ment to delivery, for it is at this point that rupture occurs when it does occur.

Having reached the feet of the fetus, the membranes are ruptured at this point. If possible both feet should be grabbed and slowly pulled down. If only one foot is found, it should be brought down into the vagina and steadied with the other hand; after this the other foot is searched for and found and brought down to the position of the former. With both feet in the grasp of the operator's hand gentle tension is made on them until they reach the vulva. At this time version is complete. Both feet are now grabbed with both hands and traction is made downwards. In pulling down on the feet they should be held with the toes pointing anteriorly, as if intending for the child to be extracted with its back posteriorly. When the knees of the fetus have reached the perineum further traction is suspended for five or ten minutes. The purpose of this respite in pulling on the child is this: —when the knees have reached the vulva the buttocks of the child is in the hollow of the mother's sacrum. By leaving the fetus alone at this stage we allow the arms of the child to drop down to their normal position, to that of flexion upon the chest of the fetus instead of becoming extended over the head as sometimes happens.

The fetus is now with its back posteriorly. By pulling down on the legs of the child and at the same time pulling one leg over the other in a counter-clock wise manner the fetus is rotated until its back is anterior. Traction downward is maintained until the axillae are reached. With index finger in the axilla of the anterior shoulder pushing the scapula outwards the anterior shoulder is delivered. Care must be taken not to push the finger too far up into the axilla as in this way injury to the brachial plexus may occur. Likewise, too much tension must not be put on the arm as the humerus may be broken. In delivering the arm the index finger should pull down through the bend of the elbow. After delivery of the anterior shoulder, the right hand is put on the back of the fetus, the neck of the child resting between the index and middle fingers of the operator's hand and the thumb on the side of the child. In this way the body of the child is rotated clockwise, the posterior shoulder made anterior and then delivered as before.

Occasionally it happens that the arms of the child become extended and are caught between the occiput of the fetus and pubis. This is what is known as nuchal hitch and may be right or left. To disengage the right or left arm we aim to bring the arm in such a position that instead of being caught between the pubis and the occiput we rotate the body of the baby so that the arm will find itself between the pubis and the face of the child. For instance, if the right arm of the child is caught and cannot be delievered, the body of the child is rotated to the mother's right side. In this way the face of the fetus will be brought more anteriorly and the arm delivered. Having delivered both shoulders, the vertex of the fetus will be found just above the symphysis pubis. The operator makes gradual downward traction. An assistant may push down above the symphsis pubis upon the foetal head in order to promote flexion of the head upon the body. Traction is still made downwards until the head rests on the perineum.

Now the Maricean manoeuvre is employed. The legs of the child are made to straddle the operator's arm and chest of the fetus rests on the palm of his hand. The index finger of the operator's hand is inserted into the child's mouth, making it touch the roof but not the floor of the mouth.

The arm of the operator is now raised so that the child's body is perpendicular to the abdomen of the mother. The fingers of the other hand of the operator, by gentle stroking of the child's neck downwards forces any secretion from the throat of the child. Usually the child will take one or two breaths before the head is out. The fetal head is gradually eased out of the perineum, sufficient time being taken to stretch the perineum to prevent, if possible, a perineal tear. A word of caution in elevating the body of the fetus towards the abdomen of the mother,—one must make sure that the head is absolutely on the perineum, otherwise the body of the child will be bent backward and if the head is not yet out of the bony pelvis its neck may be broken. Dr. Potter believes that more than the traditional eight minutes may elapse from the time of the birth of the umbilicus to the delivery of the head without endangering the life of the child. After the baby is born the placenta is delivered in the usual manner.

In a primipara, failure of engagement at

the onset of labor denotes some abnormality. The size of the pelvis should be studied again and the position and presentation of the fetus determined. If there is any question at all about the capacity of the maternal pelvis, Caesarean section is much safer for the mother and child provided the early part of the labor has been managed correctly and such a patient has been treated as a potential Caesarean. Due to this attitude of the hospital staff to the possibility of section, there was not a single case of the Porro-Caesarean section, that is with hysterectomy, in the Lying-In Hospital during my term there, although Caesarean sections were performed there every day.

In ordinary clean cases the classical Caesarean section is performed. I will not go into a discussion of the technique of the operation; this is fully discussed in text-books, except that Dr. Davis, the chief surgeon, makes his abdominal incision above and down to the umbilicus, and incises the uterus nearer the fundus than the text-books tell us. His contention is that after delivery, when the uterus contracts there is then no danger of the scar of the uterus adhering to the scar of the abdomen. However, even if this be of considerable importance, it is obviated by some operators at that hospital by covering the uterine scar with buried Lembert sutures. The classical Caesarean section is carried out just as described in text-books, except that the placenta is removed manually in every case.

If the patient has been examined on the outside a little more than they would like, then the low double flap Caesarean section is used. This differs somewhat from the classical Caesarean. After opening the abdomen through a low mid-line incision, the peritoneum is incised on the lower portion of the uterus just above its reflection on the bladder all the way across—from one broad ligament to the other—with blunt dissection. It is separated off from the body of the uterus for about 10 c.m., high enough to make longitudinal incision into the uterine musculature—long enough to deliver the child. The sewing of the muscle is done as before. When this is finished, the upper flap of the peritoneum is brought down over the uterine wound and tacked down with several interrupted sutures. After this, the lower fold of the peritoneum is brought up over the upper one and tacked over it with several interrupted sutures. When this is done, the uterine scar is entirely hidden and covered by peritoneum, and the peritoneal folds are not contaminated as they are separated off before the uterine musculature is incised. This operation is a little more difficult than the ordinary Caesarean, but is compensated for by the greater safety of the patient as far as infection is concerned.

In frankly infected cases, the extraperitoneal Caesarean section is done. When the patient is ready for operation, a catheter is passed into the bladder and the bladder filled with saline. The catheter is clamped. A low abdominal incision is made to the left of the mid-line down to but not through the peritoneum. The distended bladder is found and the space between it and the uterus is made out by blunt dissection. The peritoneal reflection from the bladder onto the uterus is freed enough to make a long enough incision; the clamp on the catheter is removed, the saline is allowed to run out and the bladder collapses and is retracted to the side with a retractor. The uterus is incised and the child is delivered and the rent in the uterus closed in the usual manner. The necessity for the extra-peritoneal type of Caesarean section is rare in the Lying-In Hospital.

When the uterus has been closed, it is squeezed in order to force out all clots through the cervix, as the presence of clots in the interior of the uterus will prevent its efficient contractions and will predispose to bleeding. Pituitrin is not used, either into the uterus or subcutaneously, as there is no occasion for it and post-operative uterine bleeding is rare. The abdominal wound is closed and a tight abdominal binder is applied. The post-operative convalescence is usually normal and the treatment does not differ from any other non-complicated laparotomy.

With the head engaged, a different situation presents itself. Dystocia here may be due to a contracted outlet, malposition, or to inefficient pains. A frequent cause of lack of descent of the engaged head is an edematous anterior lip of the cervix. It should be noted that synclitism or the passage of the bony head against the bones of the pelvis is much more extensive posteriorly than anteriorly. The head sliding down along the sacrum has about 2½ times the distance to travel than that part of the head in contact with the pubis. Here the comparative lack of movement of the head over

the pubis favors the accumulation of fluid in the anterior lip of the cervix. This may become so thick as to prevent the passage of the head downwards. In such cases the anterior lip of the cervix should be pushed back over the head. I personally have had a case on the outdoor service where the anterior lip of the cervix was so thick that it could not be pushed over the head. With the orange stick that we use to clean our fingers nails, after sterilization, I made several punctures in the anterior lip of the cervix. The edema then subsided enough to allow the head to travel downward.

After the head is engaged and no progress is made for two hours, something has to be done, as the pressure on the fetal head may prove dangerous to the safety of the child, and also there is too much chance for infection. Usually forceps are applied. In posterior positions the double Scanzoni application is usually done but only after one has tried to rotate the head manually to an anterior position and failed.

A not uncommon source of worry to the obstetrician is post-partum hemorrhage. Especially in the operative cases it is likely to occur. Of course the placenta and membranes should be thoroughly inspected and, if a piece is left in, one should go after it. The torn cervix should be repaired. If neither of these accounts for the hemorrhage and the uterus fails to contract satisfactorily, a c.c. of pituitrin should be administered and the uterus kneaded continuously until the hemorrhage stops. If this is unsuccessful, preparations are made to pack the uterus and this should not be delayed too long, for too long a delay may prove fatal to the patient.

One hand is introduced into the uterus, while the other hand grabs the fundus through the abdominal wall. An assistant holds a tube of iodoform gauze. One hand grabs the end of the packing and carries it into the uterus and packs it. The packing is done very tightly. Loose packing is worse than no packing at all. There is no danger of rupturing the uterus, as pressure is then made against the uterine wall supported by the hand on the abdomen. Many yards of gauze are usually required to fill the uterus. When one tube of gauze is exhausted, the end is tied to another strip of packing and the packing continued. This usually stops the uterine hemorrhage. Twenty-four hours later, after the administration of a c.c. of pituitrin, some of the gauze is removed and, if no bleeding follows, all the packing may be removed. But one must always be ready to re-pack the uterus after removing the packing should bleeding recur.

Asphyxia Neonatorum.

Usually after anaesthetizing the mother for some time the baby does not begin to breathe right at once. The steps followed at the Lying-In Hospital to bring about breathing in the newborn infant are as follows:

As soon as the cord is cut the baby is grabbed by its feet with its head down. The thumb rubs down its neck in order to express out the mucus from its throat. If much mucus is seen to come from its mouth and nostrils the mouth and nose are cleaned with a piece of gauze. The baby is held with its head down for from 10 to 15 minutes while friction is made by rubbing its front and back with a piece of gauze. Once in a while it is slapped on its buttocks. If this fails to bring about respiration, a little ether may be poured on its body while the operator blows on the ether. The purpose of this is to bring about more rapid evaporation and increase the cooling effect. If respiration is still in abeyance, two pans of cold and warm water should be ready and the child immersed alternately in the cold and warm water. In changing from cold to warm water, it must be kept very little time in the cold and about three times as long in the warm water. The purpose is only to get the effect of the sudden change in external temperature but to keep it mostly in the warm water to preserve its body temperature.

While immersed in the warm water with its head above the water lever, alternate compression and relaxation of the chest wall should be done by the obstetrician. If, after, a reasonable length of time, the child still fails to breathe, it should be laid on the table, a catheter inserted into its trachea, and an attempt made to suck any secretion that may be present in the lungs. After this a piece of gauze should be laid over its mouth and nose, and one should force in breaths of air into the baby's lungs about 18 per minute. This should be kept up until either the baby begins to breathe normally or the heart ceases to beat. The child should not be given up for dead

until at least one-half hour has been spent on it.

Alpha-lobelin, recently advocated as respiratory stimulant in asphyxiated children, has been tried in the Lying-In Hospital, but no startling results were obtained from it.

Clinical Reports

A MATERNITY CASE WITH UNUSUAL FEATURES.*

By E. PENDLETON TOMPKINS, M. D., Lexington, Va.

On September 9th, 1927, I attended Mrs. C——, 22 years old, white, primipara, the wife of a farm laborer. The young couple live with her parents, in a small log cabin, some six miles from my office, which is reached by a very rough road leading across a deep ford in a large creek.

The progress of the case was uneventful up to a certain point, except that it was unusually slow, in spite of two half c.c. doses of pituitrin. I had diagnosed twin pregnancy by external palpation. The first child, a girl, was born at 2:50 P. M. After attending the child's eyes and dressing the cord I took a seat on the porch to smoke. From time to time I returned to the bedside; the patient resting in apparent comfort, and dozing a little. An hour or more had passed, I had just left the bedside, the patient answering questions I put to her, and seeming entirely normal, with no further contractions of the uterus as yet; suddenly came a wild outcry from her mother and her husband sitting in the room with her. I rushed in to find the patient in horrible convulsions. The young husband, shrieking "she is dying, she is dying", fled from the room and from the house, and I saw him no more for hours. The mother was almost as bad, she refused to come back into the room, or to help me, but with her apron over her face sobbed and lamented. The only help at hand was an old lady, a neighbor who had come in. I poured ether on the cone, and handed it to her, and quickly loaded a hypodermic syringe with morphine, and injected it in the arm. I asked the old lady if she had ever assisted in a forceps delivery. She said she had never been present at one, but she was willing, and would do her best. The family had let the fire go out, and I hastened to the kitchen, where I had to rekindle the fire, and put instruments on to boil, after which I made other necessary preparations, as to solutions, etc. In the meantime the heavy rains had swollen the creek so it was impassable, and help could not come even had there been time to send to the nearest phone, a mile or more away. I anesthetized the patient rather deeply, placed her across the bed, with sheet rolled corner-wise to serve as leg-holder, and with the old lady lending a hand as she could, I delivered the second twin, also a girl, as rapidly as possible. This child was born at 5:50 P. M. It was quite blue and showed no effort at respiration, so I had to occupy myself with the usual methods of resuscitation. In ten minutes or so the baby was crying fairly well, I had just wrapped it up and laid it aside, and when I turned to the mother I was confronted by the most copious hemorrhage I ever had to deal with. It seemed to me that a gallon of blood was lost, though I presume the amount was probably not half that amount. I compressed the uterus and held it firmly until separation of the placenta was completed, kneading the womb to hasten the process. The placenta was single but very large, with of course two cords. Then I found a rather extensive laceration, requiring a number of catgut sutures. This having been done, and the patient cleaned up, she was quite ready to rest, and I assure you I was also glad to rest. For more than two hours I had bent over that low bed, in a room whose width barely accommodated the length of the bed, with only the light from a tiny window, with no table but the end of the sewing machine to place anything upon, my pans of solutions in chairs, and my instrument roll on the floor, and worst of all with myriads of flies swarming everywhere, so that towels must be spread over all I used.

However, in spite of all obstacles the patient has made a good recovery. Of course the profuse bleeding was beneficial to the eclampsia, but she was left in a condition of relative exsanguination, not conducive to nourishing even one baby, not to mention two.

I was convinced by this experience that it is possible, when one is confronted with dire necessity, to get along after some fashion with very little help, and can save not only the mother, not only even the mother and one baby, but the mother and both babies.

Post Scriptum. The mother and babies were

*Read at the October, 1927, meeting of the Rockbridge County Medical Society.

visited five weeks later, and found to be doing well; the babies are growing at very satisfactory rate, without artificial feeding, and the mother's color is nearly normal.

OBSTRUCTIVE ATELECTASIS—CASE REPORT.

By E. G. GILL, M. D., Roanoke, Va.
Gill Memorial Eye Ear and Throat Hospital, Department of Bronchoscopy.

Patient, age thirteen months, was referred to us June 4, 1927, by Dr. F. L. Banks. The parents gave the following history:

Two days previous to admission, child aspirated a pento bean. This was immediately accompanied by severe coughing and strangling. The child has had similar coughing spells at intervals since aspirating the bean. The child becomes very blue during the attacks of coughing and strangling.

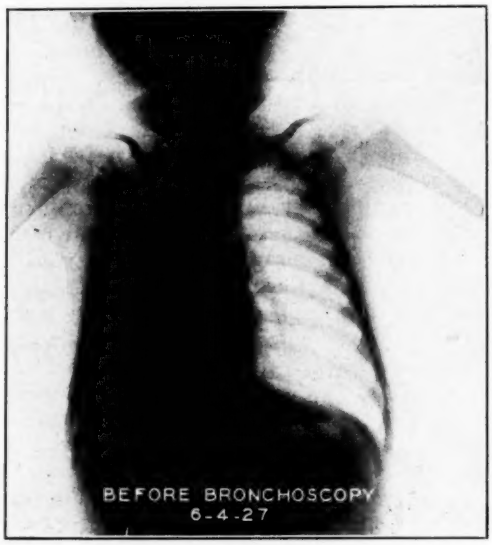


Fig. 1.—Non-radiopaque foreign body, pento bean in right main bronchus, causing complete obstruction with atelectasis and drowned lung. Present two days. Note (a) displacement of heart and mediastinum to right or invaded side. (b) depression of left diaphragm. (c) transparency of un-invaded side.

Temperature on admission was 105 F, respiration 100, pulse 160. Physical examination showed complete dullness and absence of breath sounds over entire right chest. On inspection a compensatory emphysema of the left side was easily observed.

Examination of the nose and throat was negative. Blood count—W. B. C. 13,000; haemoglobin 65 per cent; polys. 50 per cent; lymphocytes, large 2 per cent; small, 47 per cent.

X-ray examination of the chest showed cloudiness of the entire right lung. The heart shadow was obscured, as the heart and mediastinal structures were displaced to the right side. This presented a typical picture of obstructive atelectasis.

The child's condition was critical, and we realized that something had to be done immediately. The child was taken to the operating room an hour after admission and the bronchoscope was introduced. The trachea and bronchus were filled with purulent secretions. After the secretions were removed by suction, the bean was seen in the right main bronchus. It was impacted and there was considerable swelling of the mucous membranes around the bean. A portion of the bean was removed, but due to the child's critical condition, we did not feel that it was advisable to prolong the operation. The secretions were profuse and the child was so exhausted we felt that a tracheotomy should be done so that the secretions could be aspirated through the tracheotomy tube. The operation was done while the bronchoscope was in the bronchus. The child was taken back to the room and the secretions were aspirated through the tracheotomy tube.

Fig. 2.—Radiograph four days following bronchoscopic removal of one-half of the bean. The right main bronchus was uncorked, thereby restoring ventilation and drainage. Note (a) normal position of heart, mediastinum and driaphragm normal. (b) Transparency of right and left lungs.

approximately every fifteen minutes, day and night, for four days. During this time the temperature ranged around 104, respirations 50 to 75.

X-ray picture number two showed the change that had taken place in the right lung since the first bronchoscopy was performed. This picture was taken four days after admission. Our second bronchoscopy was done on the seventh day, when we removed the remaining portion of the bean. At this operation we had Dr. F. D. Woodward in consultation.

The child improved gradually from this time and was discharged from the hospital on June 25, and has since remained well.

COMMENT.

This case is one of an organic foreign body, and it very clearly demonstrates the extreme toxicity of this type of foreign bodies in the lungs of children. We feel that this child's life was saved by two measures which we followed,—first, in not prolonging the first bronchoscopy more than ten minutes; second, in performing a tracheotomy. Had we been successful at the first bronchoscopy in removing the entire bean, a tracheotomy would still have been indicated as the child, in its weakened condition, would not have been able to expel the profuse amount of secretions.

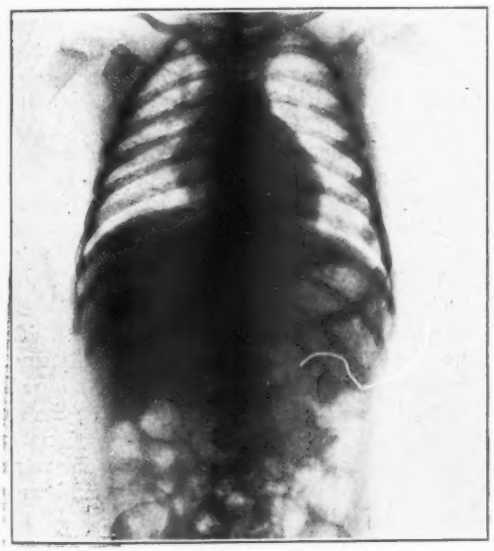


Fig. 3.—Radiograph ten days after first bronchoscopy. Condition same as in Fig. 2.

This child was kept alive for days by constantly aspirating the secretions through the tracheotomy tube. This was done by the use of a very small rubber catheter, introduced through the cannula, and suction applied. The secretions were thick and tenacious at times. In order to loosen the secretions, normal saline solution (ten to fifteen drops) was introduced into the trachea and bronchus through the tube every three hours.

711 *South Jefferson Street.*

President's Page

Post-Graduate Medicine—A Need of the Profession.

In the beginning of a New Year it is customary for business corporations to take an inventory and make a report to its stockholders.

A similar procedure upon the part of the Medical Society of Virginia, likewise a corporation, may not be inappropriate, more particularly since the adoption of the new constitution and by-laws has copied modern business methods to the extent that its councilors now function as a board of directors, its committees having been made appointive, and responsibility centralized.

In reckoning assets, those most to be desired in business are material and tangible. On the contrary, those of most value in a scientific organization are intangible and consist of a wide awake progressive membership of high morale.

In a consideration of the activities of the Society during the past year, it is a source of gratification to note the increasing interest manifested throughout the State in the work of the various local organizations and its high order of such work. Likewise, a review of the records of the work of committees as noted in the minutes of the October meeting shows that a number of important matters have been undertaken, and real progress made.

Looking to the additional lines of endeavor that promise most for the New Year, one naturally inquires as to the greatest need.

Is it not the consensus of opinion that the one greatest need of the profession in this State at the present moment is the devising and putting into practical operation a system of post-graduate work, and of review, suitable to the needs and wishes of the general practitioners, the family physicians, to whom the

post-graduate centers are not easily accessible and whose needs for the most part are not met by the present system of instruction?

Organized as at present, with its component units touching all parts of the State, what are the opportunities and obligations of the State Society as relates directly to these, the largest group of practitioners, in the State?

Within the past one and a half decades, a period far shorter than the average man in the State has been in practice, advances have taken place so rapidly that only those most favorably situated could possibly keep themselves well informed. I refer to the lessened incidence of the class of infections which have well nigh disappeared as knowledge of good sanitation and hygiene have spread; the change wrought by a growing knowledge of the relation of focal infections to morbidity, and to advancing knowledge as relates to the endocrines, to sera and vaccines; and finally the greater incidence of diseases of nutrition and of the circulation. A revolution over night.

During the time here mentioned, practically all of the specialties have arranged for clinics and didactic instruction of one sort or another, while upon the contrary, until the recent undertaking of post-graduate work at the University, the general practitioners of the State have been dependent solely upon what could be gleaned from the journals and the papers read before their local, and the State Society.

Much has been said of the drift to the specialties, the disappearing family physician, and the general unrest and discontent of recent graduates in medicine. However this may be, it is inevitable that the vast majority of the sick will continue to be treated either at home or in community hospitals by the family physician, and that they will profit or lose in accordance with the facilities afforded him to keep well informed, and that sooner or later, with proper opportunity, he must again come into his own.

As is well known, various methods of post-graduate work have been tried in different states; some have succeeded, others have failed. Just what suits one community may not suit another.

What is the best solution of the need in Virginia? Is the reason why the general practitioner has not been more interested, chiefly that he cannot leave his patients to visit medical centers, or is it as above indicated that he cannot find short courses that fit his needs? Would he attend a series of didactic lectures and clinics if given by trained teachers at suitable hours in some designated locality within his reach?

What then are the possibilities of determining the real needs and the probable success of a statewide movement along the lines indicated and the better means of accomplishment?

In corresponding with Dr. Flippin, of the University, which institution, as above noted, has already undertaken in a successful way some post-graduate work, and with Dr. Sanger, of the Medical College of Virginia, it has been ascertained that both institutions have for some time been interested, and both Dr. Flippin and Dr. Sanger express not only a willingness to cooperate, but a desire to be of service both in working out a suitable plan and in aiding to put it into execution.

Upon the whole it would seem that the line of better promise is first to ascertain as nearly as possible whether the majority of physicians of the State would enter into a properly devised plan with enthusiasm and give it the necessary support; then, if so, that it be determined whether the work shall be done chiefly at the colleges, or by lectures and clinics sponsored by the local organizations throughout the State as a college extension, or otherwise.

While the various phases of a tentative plan, looking to the advisability of some such undertaking as here outlined, will be considered by the Council at its January meeting, it would seem proper to ascertain by various means the wishes of the majority of the members of the Society; therefore, may I not suggest that the columns of the Journal be made an open forum, and discussions and suggestions invited?

J. W. Preston.

Bibliotheca Obstetrica

Edmund Chapman.

Chapman (Edmund) [1680-1756]. A treatise on the improvement of midwifery, chiefly with regard to the operation. To which are added fifty-seven cases, selected from upwards of twenty-seven years' practice. 2. ed. lv, 186 pp. 8°. *London, J. Brindley*, 1735.

——. A reply to Mr. Dougless's short account of the state of midwifery in London and Westminster, wherein his trifling and malicious cavils are answered, his interestedness and disingenuity impartially represented, and the practise of physick, but particularly the character of the late Dr. Chamberlen, vindicated from his indecent and unjust aspersions. 68 pp. 12°. *London. T. Cooper*, 1737.

To Chapman belongs the credit of publishing one of the first systematic treatises on obstetrics in English and the first account of the obstetrical forceps. In his first edition, which was published in 1733, he describes the instrument that "has long been known" by which one can deliver babies by the head without detriment to the mother or child. He was criticized for not giving an illustration of the instrument. In his second edition he made good this defect:

Chapman is also credited with improvement of the lock of the forceps. Great stress was laid on accurately articulating the two blades so that a pin could be fitted into them. Chapman lost the pin to his forceps and found that they worked equally well if not better without the pin. This is said to be the beginning of the loosely fitting "English lock".

There is very little written about Chapman. He is generally spoken of as a country practitioner. When he moved to London in 1733 he lived in Red Lion Square and must have been a neeighbor of Dr. James Douglas. Dr. James Douglas was a distinguished obstetrician and anatomist, the discoverer of the pouch of periotoneum that bears his name, and a brother of John Douglas with whom Chapman had a controversy. There was another Douglas, William, who was the author of several bitter open letters against William Smellie. It would seem that 18th century obstetricians spent a large part of their time writing open letters and calling each other names. The titles of the letters are very comprehensive and they sometimes enable one to classify friends and foes. Thus the title of John Douglas's letter its: "A short account of the state of midwifery in London, Westminster, etc., wherein an effectual method is proposed to enable midwomen to perform their office in all cases (excepting those few where instruments are necessary) with as much ease, speed, and safety as the most dextrous midmen; whereby women and children's falling victims to the ignorance of midwomen, so loudly complained of by Chamberlen, Giffard, and Chapman, may for the future be prevented, etc. 21., 75 pp. sm.

Illustration of obstetrical forceps from the 2nd edition of Chapman.

8°. *London, author*, 1736." From this and Chapman's 68 page reply thereto, it would appear that Chapman and the Chamberlens were friends.

M. P. R.

Proceedings of Societies

Rockbridge County Medical Society.

This Society at its meeting in the Chemistry Building of Washington and Lee University, December 12th, gave a vote of thanks to Dr. R. P. Cooke and the local Health Unit for their efficient and effective services during the

year. The present officers were re-elected, as follows: Dr. E. P. Tompkins, president; Drs. C. H. Davidson and Jos. Seebert, vice-presidents; and Dr. H. L. Mitchell, secretary-treasurer. All are of Lexington.

Mr. Charles Stevens, of Parke, Davis and Company, showed that company's moving picture of "How Biological Products are Made". There was an attendance of about seventy-five, including Washington and Lee students and professors and V. M. I. cadets, in addition to members of the Society.

The Accomack Medical Society

Held its annual banquet at the Drummondtown Tavern, December the 14th, at which time Dr. Geo. L. Fosque, of Onancock, vice-president, presided in absence of the president, Dr. C. E. Critcher, of New Church. Dr. J. McFadden Dick, of Salisbury, Md., was the principal speaker, though talks were also made by Dr. J. W. Bowdoin, Dr. W. M. Burwell, Dr. Rooker J. White, Dr. John W. Robertson, Dr. Fred Wampler, Dr. Joseph Hiden and Dr. R. R. Nevitte. The doctor's wives attended this meeting with their husbands and Mrs. Hiden and Mrs. Rooker White gave talks from the standpoint of the doctor's wife, while Mrs. W. L. Cosby, of Painter, added much to the pleasure of the occasion with violin solos. There were about thirty people at the banquet table.

The Pittsylvania County and Danville Medical Society

Held its regular quarterly meeting in Danville, December the 13th, under the presidency of Dr. Charles A. Easley, of Chatham. There was a good attendance and Mr. Charles Stevens, of Parke, Davis & Company, showed a moving picture film on "How Biological Products are Made". The film was instructive and Mr. Stevens' talk much enjoyed.

In the election of officers, Dr. L. E. Fuller, of Witt, was made president; Dr. H. J. Langston, Danville, vice-president; and Dr. J. A. Hawkins, Danville, was re-elected secretary-treasurer. The following were elected members of the Board of Censors: Dr. W. W. Robertson, Danville, for three years; Dr. P. W. Miles, Danville, for two years; and Dr. J. C. Anderson, Chatham, for one year. It was decided to hold the next meeting in Danville, March the 13th.

The Warren, Rappahannock and Page Medical Society

Held its regular meeting in Front Royal, November 9th, at which time several interesting and instructive papers were read. Dr. Hunter McGuire, Winchester, and Drs. J. Edwin Wood and Dudley C. Smith, University, were the invited guests.

Dr. Virgil Hammer, Luray, was elected President; Dr. Reginald Munson, Linden, Vice-President; and Dr. George H. Long, Luray, Secretary-Treasurer. Dr. E. L. Grubbs and Dr. D. M. Kipps, both of Front Royal, are the retiring president and secretary, respectively. It was decided to hold the next meeting in Luray on the second Tuesday in April, 1928.

The Richmond Academy of Medicine,

At its annual meeting in December, elected the following as officers for 1928: President, Dr. James H. Smith; Vice-Presidents, Drs. M. L. Anderson and Paul W. Howle, all of Richmond. The Secretary-Treasurer has to be elected by the Board of Trustees. It is interesting to note that the present incumbent, Dr. Mark W. Peyser, has been secretary since 1894 and has been secretary-treasurer since these offices were combined several years ago.

The Southside Virginia Medical Association

Met in Petersburg, December the 13th, under the presidency of Dr. Wright Clarkson, of that city. There was an attendance of fifty-six members and visiting doctors. "Eclampsia" was the subject for general discussion and this and all other papers on the program were freely discussed.

The following officers were elected for the ensuing year: President, Dr. W. D. Prince, Stony Creek; Vice-Presidents, Dr. R. H. Manson, McKenney; Dr. J. L. Hamner, Mannboro; Dr. W. C. Webb, Disputanta, and Dr. J. A. Grizzard, Drewryville; Secretary-Treasurer, Dr. R. L. Raiford, Franklin, re-elected.

The next meeing will be held in Suffolk on the second Tuesday in March.

New Society Organized at University of Virginia.

A new medical society, "THE MEDICAL SOCIETY OF THE UNIVERSITY OF VIRGINIA", has just been organized by the members of the medical teaching staff and hospital of the University of Virginia. The new society is an outgrowth of the medical journal club which has been running successfully for about twenty years, and of clinical-pathological conferences now in their seventh year.

It is planned to hold meetings of the new

society every fortnight from October to May, for the presentation of papers, discussions of clinical cases, and reports on laboratory studies.

Invitation is hereby extended to members of the medical profession to visit these meetings, especially to the members of the Medical Society of Virginia, and of the Piedmont and Albemarle Medical Societies. It is hoped to have members of the state societies take part in the meetings from time to time.

Dr. William E. Bray is President; Dr. J. Staige Blackford, Secretary; Dr. Harry T. Marshall, Editor.

The first meeting was planned for Monday, January 9, 1928; the second on January 23, at 7:30 P. M., in the University of Virginia Hospital. The general schedule calls for meetings every other Monday for the rest of the winter.

Woman's Auxiliary, Medical Society of Virginia

At the request of the officers of the Auxiliary, this space has been set aside for communications from them regarding matters of interest, both to the profession and to the women members of their families.

All communications should be addressed to Mrs. E. F. Truitt, Secretary, Westover Avenue, Norfolk, Virginia.

A. M. A. Officers Cooperate with Auxiliary.

At the American Medical Association meeting in Washington, last May, the House of Delegates authorized the Trustees to appoint a Liaison Committee to guide the Auxiliary in its policies. This appointment was not made until the meeting of the Board of Trustees in September. The Auxiliary has been greatly honored in having the Executive Board of the Board of Trustees appointed to direct its work. It is composed of the following gentlemen:

Dr. Edward Heckel, Ex-Officio Chairman, Pittsburgh, Pa.

Dr. A. R. Mitchell, Lincoln, Neb.

Dr. J. H. J. Upham, Columbus, Ohio.

Dr. J. H. Walsh, Chicago, Ill.

Dr. Olin West, Secretary and General Manager, Chicago, Ill.

Dr. Morris Fishbein, Editor, Chicago, Ill.

These men have given their approval and offered excellent suggestions, outlining plans for the Auxiliaries' work during the year. Some of these are:

To organize for the purpose of responding to any call from the medical profession and to do all the work assigned to it from time to time.

To promote closer social contact between the families of physicians.

To assist in lightening the burdens of humanity.

To help preserve the health of the people.

To outline Health Programs approved by the Liaison Committee to be presented before other organizations.

To recommend to all clubs that they place capable physicians' wives in charge of Club Health Departments, in order to secure authoritative programs.

To secure, if possible, moving pictures to illustrate the importance of the annual physical examinations by the family physician. Each member of every household, servants included, should be examined.

To assist in providing Health Talks over the radio by prominent physicians and health officers. These speakers should be appointed by the County Medical Society.

To continue our efforts to place *Hygeia* in every home, as it is the leading health magazine of the United States and is published by the American Medical Association.

To appeal especially to physicians to aid in the *Hygeia* campaign, as the commissions received enable the Auxiliaries to extend their activities.

To recommend to Auxiliaries that they give benefit entertainments to create a fund for *Hygeia*, which will be used as gifts of subscriptions to schools, legislators, churches and libraries.

The Members of the Woman's Auxiliaries to the American Medical Association are those who have paid their annual dues to the National organization through their County and State Auxiliary.

Where there is a County Medical Society there should be an Auxiliary. It has been uniformly noted that there is more interest and enthusiasm, and a greater spirit of comradeship among the members of the County Medical Society if there is an active Auxiliary working in the community.

It is the earnest endeavor of the Auxiliary

to bring its work to the attention of all who are interested in the welfare of our people.

Every physician's wife should feel it a privilege as well as her duty to promote dependable health education, not leaving it in the hands of those who are interested in spreading the propaganda of various cults.

She can aid materially in the Auxiliary's effort to impress upon all club members a proper conception of the real mission of Organized Medicine, especially in its crusade of Preventive Medicine.

The Woman's Auxiliary to the Norfolk County Medical Society

Held its first meeting with new officers on Monday night, December the 5th, while the Norfolk County Medical Society was in session. Following the roll call and reports of committees, Dr. Warren White gave a talk on "The Advantages of the Woman's Auxiliary to the Medical Profession". This was followed by a talk by Dr. Southgate Leigh on "How the Woman's Auxiliary May Help to Educate the Public". There were about fifty ladies present and the meeting was so enthusiastic that it was decided that the best time for meetings was while the doctors were having their sessions.

Officers of the Norfolk County Auxiliary are: President, Mrs. M. N. King; vice-presidents, Mrs. N. F. Rodman, Mrs. James D. Collins and Mrs. W. P. McDowell; recording secretary, Mrs. W. A. Porter; corresponding secretary, Mrs. R. U. Burgess; treasurer, Mrs. Lomax Gwathmey. The following chairmen were named for the year: Public Health, Mrs. Southgate Leigh; Hygeia, Mrs. Lewis Berlin; Entertainment, Mrs. N. F. Rodman; Publicity and Editor, Mrs. W. P. McDowell; Membership, Mrs. J. D. Collins and Mrs. Charles W. Doughtie; Visitation of Sick Members, Mrs. Starke Sutton; Music, Mrs. R. H. Peake; and Motor Corps, Mrs. C. J. Andrews.

Other Auxiliaries are urged to send reports of their meetings for publication.

"For life is the mirror of king and slave;
'Tis just what we are and do;
Then give to the world the best you have,
And the best will come back to you."

—*Madeline S. Bridges.*

The Truth About Medicine

In addition to the articles enumerated in our letter of October 29th, the following have been accepted:

Abbott Laboratories
Staphylococcus Mixed Bacterin
Typhoid Prophylactic, 5 c.c. vials
Typhoid Prophylactic, 20 c.c. vials

Cutter Laboratory
Pollen Extracts—Cutter, 5 c.c. vial
Alkali Weed Pollen Extract Concentrated—Cutter; Allscale Pollen Extract Concentrated—Cutter; Annual Saltbrush Pollen Extract Concentrated—Cutter; Arizona Ash Pollen Extract Concentrated—Cutter; Bermuda Grass Pollen Extract Concentrated—Cutter; Black Walnut Pollen Extract Concentrated—Cutter; Box Elder Pollen Extract Concentrated—Cutter; Burning Bush Pollen Extract Concentrated—Cutter; Canary Grass Pollen Extract Concentrated—Cutter; Careless Weed Pollen Extract Concentrated—Cutter; Coast Sagebrush Pollen Extract Concentrated—Cutter; Cocklebur Pollen Extract Concentrated—Cutter; Common Ragweed Pollen Extract Concentrated—Cutter; Corn Pollen Extract Concentrated—Cutter; Cottonwood Pollen Extract Concentrated—Cutter; False Ragweed Pollen Extract Concentrated—Cutter; Foxtail Grass Pollen Extract Concentrated—Cutter; Giant Ragweed Pollen Extract Concentrated—Cutter; Johnson Grass Pollen Extract Concentrated—Cutter; June Grass Pollen Extract Concentrated—Cutter; Lamb's Quarters Pollen Extract Concentrated—Cutter; Marsh Elder Pollen Extract Concentrated—Cutter; Mountain Cedar Pollen Extract Concentrated—Cutter; Mugwort Pollen Extract Concentrated—Cutter; Oak Pollen Extract Concentrated—Cutter; Olive Pollen Extract Concentrated—Cutter; Orchard Grass Pollen Extract Concentrated—Cutter; Plaintain Pollen Extract Concentrated—Cutter; Red Root Pigweed Pollen Extract Concentrated—Cutter; Red Top Pollen Extract Concentrated—Cutter; Russian Thistle Pollen Extract Concentrated—Cutter; Rye Grass Pollen Extract Concentrated—Cutter; Sagebrush Pollen Extract Concentrated—Cutter; Shad Scale Pollen Extract Concentrated—Cutter; Timothy Pollen Extract Concentrated—Cutter; Tumbleweed Pollen Extract Concentrated—Cutter; Velvet Grass Pollen Extract Concentrated—Cutter; Western Ragweed Pollen Extract Concentrated—Cutter; Western Waterhemp Pollen Extract Concentrated—Cutter; Wild Oat Pollen Extract Concentrated—Cutter; Yellow Dock Pollen Extract Concentrated—Cutter.

Lederle Antitoxin Laboratories
Anaerobic Antitoxin (Polyvalent)—Lederle

Merck & Co., Inc.
Erythrol Tetranitrate Tablets—Merck, ¼ grain.

H. K. Mulford Co.
Ampuls Dextrose (d-Glucose) 10 Gm., 20 c.c.
Ampuls Dextrose (d-Glucose) 25 Gm., 50 c.c.

Parke, Davis & Co.
Ephedrine Sulphate—P. D. & Co.

Prophylacto Mfg. Co.
Ephedrine Hydrochloride—Pemco.

E. R. Squibb & Sons
Insulin Squibb, 100 units, 10 c.c.

Tailby-Nason Co.
Nason's Palatable Cod Liver Oil.

NEW AND NON-OFFICIAL REMEDIES

Scarlet Fever Streptococcus Toxin—Squibb. This product (New and Non-official Remedies, 1927, p. 375), is now marketed in packages of five vials of toxin containing, respectively, 500, 2,000, 8,000, 25,000 and 60,000 skin test doses; in packages of fifty vials of toxin, ten containing 500 skin test doses, ten containing 2,000 skin test doses, ten containing 8,000 skin test doses, ten containing 25,000 skin test doses, and ten containing 60,000 skin test doses. E. R. Squibb & Sons, New York.

Sulpharsphenamine—DePree. A brand of sulpharsphenamine (New and Non-official Remedies, 1927, p. 80). It is supplied in ampules containing, respectively, 0.1, 0.15, 0.2, 0.3, 0.4, 0.45, 0.6, 1.0 and 3.0 Gm. The DePree Co., Holland, Mich. (Jour. A. M. A., November 5, 1927, p. 1807).

Ephedrine Hydrochloride—Pemco. A brand of ephedrine hydrochloride—N. N. R. For a discussion of the actions, uses and dosage of ephedrine hydrochloride, see *The Journal A. M. A.*, March 19, 1927, p. 925. Prophylacto Manufacturing Co., Chicago.

Ephedrine Sulphate—P. D. & Co. A brand of ephedrine sulphate—N. N. R. For a discussion of the actions, uses and dosage of ephedrine sulphate, see *The Journal A. M. A.*, March 19, 1927, p. 925. Parke, Davis & Co., Detroit. (Jour. A. M. A., November 12, 1927, p. 1693).

Nason's Palatable Cod Liver Oil.—Cod liver oil containing 0.62 per cent of essential oils as flavoring, having a vitamin A potency such that 0.002 Gm. per day is adequate to promote the growth of young albino rats and a vitamin D potency such that 0.02 Gm. per day for eight days will cure experimental rickets in rats which have been deprived of vitamin D and of ultraviolet light. Tailby-Nason Co., Boston.

Typhoid Vaccine.—This typhoid vaccine (New and Non-official Remedies, 1927, p. 367), is also marketed in packages of 30 ampules (ten complete immunizations). The Gilliland Laboratories, Inc., Marietta, Pa. (Jour. A. M. A , November 19, 1927, p. 1783).

Ephedrine.—Ephedrina.—Ephedrine Base.—An alkaloid derived from *Ephedra equisetina*. The actions and uses of ephedrine are the same as those of the ephedrine salts. The free alkaloid is employed in mediums, such as oils, in which it is more soluble than the salts. Ephedrine occurs as an unctuous, almost colorless solid. It is soluble in alcohol, chloroform, ether and water.

Ephedrine—Lilly. A brand of ephedrine—N. N. R. It is supplied in the form of Inhalant Ephedrine Compound—Lilly, containing ephedrine—Lilly, 1 per cent (by weight) in a liquid composed of menthol, 0.66 Gm.; camphor, 0.66 Gm.; oil of thyme, 0.31 c.c.; liquid petrolatum to make 100 c.c. Eli Lilly & Co., Indianapolis.

Pollen Extracts—Cutter (New and Non-official Remedies, 1927, p. 34; *The Journal A. M. A.*, June 11, 1927, p. 1891).—Also marketed in single vial packages containing 5 c.c. of a 1:100 solution. Cutter Laboratory, Berkeley, Calif.

Pollen Extracts Concentrated—Cutter. Liquid obtained by extracting the dried pollen of plants with a liquid consisting of 67 per cent of glycerin and 33 per cent of a buffered saline solution. For a discussion of the actions, uses and dosage, see Allergic Protein Preparations, New and Non-official Remedies, 1927, p. 23. The following pollen extracts concentrated—Cutter, are marketed in single vial packages containing 5 c.c.: Alkali Weed Pollen Extract Concentrated—Cutter; Allscale Pollen Extract Concentrated—Cutter; Annual Saltbrush Pollen Extract Concentrated—Cutter; Arizona Ash Pollen Extract Concentrated—Cutter; Bermuda Grass Pollen Extract Concentrated—Cutter; Black Walnut Pollen Extract Concentrated—Cutter; Box Elder Pollen Extract Concentrated—Cutter; Burning Bush Pollen Extract Concentrated—Cutter; Canary Grass Pollen Extract Concentrated—Cutter; Careless Weed Pollen Extract Concentrated—Cutter; Coast Sagebrush Pollen Extract Concentrated—Cutter; Coast Sagebrush Pollen Extract Concentrated—Cutter; Cocklebur Pollen Extract Concentrated—Cutter; Common Ragweed Pollen Extract Concentrated—Cutter; Corn Pollen Extract Concentrated—Cutter; Cottonwood Pollen Extract Concentrated—Cutter; False Ragweed Pollen Extract Concentrated—Cutter; Foxtail Grass Pollen Extract Concentrated—Cutter; Giant Ragweed Pollen Extract Concentrated—Cutter; Johnson Grass Pollen Extract Concentrated—Cutter; June Grass Pollen Extract Concentrated—Cutter; Lamb's Quarters Pollen Extract Concentrated—Cutter; Marsh Elder Pollen Extract Concentrated—Cutter; Mountain Cedar Pollen Extract Concentrated—Cutter; Mugwort Pollen Extract Concentrated—Cutter; Oak Pollen Extract Concentrated—Cutter; Olive Pollen Extract Concentrated—Cutter; Orchard Grass Pollen Extract Concentrated—Cutter; Plantain Pollen Extract Concentrated—Cutter; Red Root Pigweed Pollen Extract Concentrated—Cutter; Red Top Pollen Extract Concentrated—Cutter; Russian Thistle Pollen Extract Concentrated—Cutter; Rye Grass Pollen Extract Concentrated—Cutter; Sagebrush Pollen Extract Concentrated—Cutter; Shad Scale Pollen Extract Concentrated—Cutter; Timothy Pollen Extract Concentrated—Cutter; Tumbleweed Pollen Extract Concentrated—Cutter; Velvet Grass Pollen Extract Concentrated—Cutter; Western Ragweed Pollen Extract Concentrated—Cutter; Western Waterhemp Pollen Extract Concentrated—Cutter; Wild Oat Pollen Extract Concentrated—Cutter; Yellow Dock Pollen Extract Concentrated—Cutter. Cutter Laboratory, Berkeley, Calif. (Jour. A. M. A., November 26, 1927, p. 1873).

PROPAGANDA FOR REFORM

Gonococcus Immunogen, Gonococcus Immunogen Combined, Streptococcus Immunogen, Streptococcus Immunogen Combined, Pertussis Immunogen Combined, and Pneumococcus Immunogen Combined Not Acceptable for N. N. R.—The Council on Pharmacy and Chemistry reports that Immunogen is the name applied by Parke, Davis & Co. to bacterial antigen products free or nearly free from bacterial cells and toxin. The firm requested the Council to consider a number (twelve) of these products in 1924. The Council decided to consider eligible for acceptance those simple immunogens in the case of which similar bacterial vaccines stood accepted. Regarding the "mixed" immunogens which had been presented, the firm was informed that adequate evidence for the value of these preparations was lacking, but that any new evidence for their therapeutic value would be considered. The firm presented evidence which permitted the acceptance of two of the simple immunogens. In view of the inquiries received concerning the advertising claims made for immunogens, Parke, Davis & Co. was informed that the Council desired to take definite action in regard to those which had not been made acceptable. The firm was requested to send the advertising for the, as yet unaccepted, immunogens that were being marketed together with any further information which would aid in determining their acceptability for inclusion in New and Nonofficial Remedies. On the basis of the available evidence the Council denied admission

of the gonococcus and streptococcus immunogens to New and Nonofficial Remedies because no simple vaccines representing these organisms stand accepted; the "combined" immunogens (Gonococcus Immunogen Combined, Streptococcus Immunogen Combined, Pertussis Immunogen Combined, Pneumococcus Immunogen Combined) are held unacceptable for lack of adequate evidence of their therapeutic value. (Jour. A. M. A., September 17, 1927, p. 984).

Weldona A Piece of "Rheumatism Cure" Quackery.—In 1922 it was reported that an adult, with marked jaundice, was dying after continued use of Weldona tablets. At that time an analysis of Weldona had shown the presence of sodium salicylate. In 1924 an analysis showed the "Weldona Treatment" to consist of small, white tablets containing an emodin-bearing extract, and large, lavender-coated tablets containing sodium salicylate and an unidentified vegetable extractive. In 1925, the *Boston Medical and Surgical Journal* gave some case reports by Dr. Richard C. Cabot in which it was stated that a series of cases of acute yellow atrophy in patients having taken Weldona had come to his notice. In 1925, the Health Bureau of Rochester, New York, made some tests of Weldona and reported that unidentified alkaloids were found, together with salicylates or salicylic acid. In 1926, the A. M A. Chemical Laboratory found the lavender colored tablets to consist essentially of salicylic acid and acetylsalicylic acid, extractives of an emodin-bearing drug with vegetable extractives, ground ginger and cinnamon. The medicinal part of the white tablets was found to consist of extract of cascara. Now in 1927, advertisements for Weldona are offered newspapers and to one such paper, the advertising agency handling the advertising gave the following as ingredients of Weldona: Neocinchophen, Extract of Cimicifuga, Fluid Extract of Phytolacca, Magnesium Carbonate Light and Powdered Extract of Cascara Sagrada. A commercial laboratory that analyzed Weldona in September, 1927, reported that it consisted largely of vegetable matter, with about 5½ per cent of mineral matter. The vegetable mattfer, was apparently phytolacca and cascara sagrada, together with acetylsalicylic acid (aspirin) and salicylic acid. The laboratory did not satisfactorily prove the presence or absence of neocinchophen, but did report that tests for alkaloids showed none present. It seems evident from these several analyses that Weldona, like so many other "patent medicines," is a name rather than a thing—while the name has remained constant the composition has varied. (Jour. A. M. A., October 1, 1927, p. 1167).

ARC Epilepsy Remedy.—The medical profession has recently been widely circularized by the American Remedies Company of Rockford, Ill. The medical profession is asked to use the firm's "Reliable Remedy for Epilepsy" and is told by the firm that it does not "feel justified" in exposing its formula—that is, the medical profession is asked to prescribe a preparation of secret composition. The A. M. A. Chemical Laboratory analyzed the ARC Epilepsy Remedy and found it to consist of capsules, each containing about 1½ grains of phenobarbital (luminal) and a considerable amount of a laxative (emodin-bearing) drug and a small amount of dye. Is it possible that there are physicians who are so gullible and forgetful of their duty to their patients that they will give a dangerous drug in unknown dosage? A physician who uses or prescribes "ARC Epilepsy Remedy," giving so dangerous a drug as phenobarbital in unknown dosage, may lay himself open to a charge of doubtful practice. (Jour. A. M. A., October 1, 1927, p. 1167).

Asthmolysin.—Asthmolysin is, according to the advertising, "a combination of the suprarenal and pituitary hormones in distinct proportions," prepared by a "special method." There appears to be no scientific evidence to warrant the use of pituitary in bronchial asthma. Epinephrine is frequently used in some forms of asthma, but may be had pure and need not be prescribed in a secret preparation containing an undetermined amount. The 1927 Asthmolysin circular consists of testimonials from 121 physicians, of whom thirty-five are Fellows and thirty-three are members of the American Medical Association, while fifty-three are neither members nor Fellows. Such testimonials, given for a semi-secret preparation of unscientific character, are no credit to those members of the supposedly learned profession that gave them. (Jour. A. M. A., October 1, 1927, p. 1170).

Concentrated Orchitic Solution (Orchitic Substance Concentrated—Cousineau) Not Acceptable for N. N. R.—The Council on Pharmacy and Chemistry reports that Concentrated Orchitic Solution, also called Orchitic Substance Concentrated (Cousineau), is marketed by the California Endocrine Foundation Laboratories, Long Beach, California. According to the label on the specimen it is "A Preparation of Orcho-Plasm Ramm Derivative" while in an advertising booklet it is stated that it "consists of the small, hard, testicular gland of the healthy, young, live Goat, Ram or Monkey," and "contains saturation of the whole gland substance in solution ideally compounded." The Council found that many unwarranted and unsupported claims were made for the preparation and, hence, declared it inadmissible to New and Nonofficial Remedies. When the Council's statement was sent the California Endocrine Foundation Laboratories, the firm submitted a proposed revision of an advertising booklet. In the advertising the general impression is given that gland implants such as those of Voronoff are highly effective, and that the manufacturer's product, administered hypodermically, will give equally good or better results. Even if the proposed revision of claims is made, the preparation is still unacceptable for the reason that the manufacturer has not submitted any scientific evidence for the therapeutic usefulness and efficacy of the product. The Council, therefore, declared Concentrated Orchitic Solution (Orchitic Substance Concentrated—Cousineau) unacceptable for New and Nonofficial Remedies. (Jour. A. M. A., October 8, 1927, p. 1267).

The A-Moy Anti-Fat Fake.—The A-Moy Company is a trade name used by one Charles E. Cessna, of whom the Chicago *Tribune* once said, he "at different times in his business career has been a loan shark, patent medicine vendor, and land promoter." Cessna's present anti-fat quackery consists in selling A-Moy Reducing Pills, which, according to a report, have been responsible for at least one death. (Jour. A. M. A., October 8, 1927, p. 1267).

Liver Diet in Anemia.—While liver seems to be presenting increasing evidence of its value in the treatment of anemia, physicians everywhere are finding it difficult to keep patients contented and happy while they are taking it. This state of affairs is due partly to the fact that few people can cook liver in any other way than by frying. Recipes taken from English and French sources include many ways of preparing liver for the table. (Jour. A. M. A., October 15, 1927, p. 1335).

Fever-Producing Methods in Treatment of General Paralysis.—Compilations have been made of the results obtained in cases of general paralysis treated with malaria. The treatment has also been applied to patients with syphilis of the central nervous sys-

tem. A microscopic study of the brain following treatment by malaria leads to the conclusion on the part of the investigator that in some cases in the future the term "recovery" rather than "remission" will be justified. Relatively little has been reported during the past year concerning relapsing fever or sodoku as a therapeutic measure in neurosyphilis. It seems likely that, if infectious disease methods are to persist, a contest might arise between malaria and sodoku. Possibly the inoculation with an infectious disease will not continue to be necessary in the production of therapeutic fever. Reports have been published on the production of fever for treatment in general paralysis by the use of injections of foreign protein. The method has many advantages and the few cases on record give promise of good results. (Jour. A. M. A., October 15, 1927, p. 1337).

Peruna—Ancient and Modern—The Eighteenth Amendment gave a great stimulus to one branch of the "patent medicine" industry—that devoted to the exploitation of alcoholics sold under the guise of home remedies. Originally containing about 27 per cent of alcohol and very little else, the use of Peruna as a beverage in those parts of the country that were at that time nominally "dry" was notorious. Cases of acute and chronic alcoholism, and even, in some cases, of death from its use are matters of record. In 1905 the sale of Peruna to Indians was prohibited. In the same year the Bureau of Internal Revenue classed Peruna as an alcoholic compound advertised and sold as a medicine, but without the addition of drugs in sufficient quantity to change materially the character of the alcoholic liquor. Then the formula of Peruna was changed and sufficient senna added to satisfy the Internal Revenue Department that Peruna could no longer be used for beverage purposes. At that time the alcohol content was cut down from 27 per cent to 20 per cent. When national prohibition was enacted, the alcohol content of Peruna was further reduced to 12 per cent. Now, within the past few months, another change has taken place. The manufacturers have *added* 6 per cent alcohol and have taken out the senna! They have also taken out golden seal, which for some years has been one of the alleged ingredients; on the other hand they have added wild cherry, gentian and potassium iodide. The theory under which alcoholic "patent medicines" are supposed to be tolerated by the Internal Revenue Department is that they shall contain the minimal amount of alcohol possible. Just why the manufacturers of a nostrum with a history behind it such as Peruna should have been permitted to increase the alcohol content of their preparation 33 per cent is another of those mysteries that only government bureaus can explain. (Jour. A. M. A., October 22, 1927, p. 1444).

Carl C. Lantz—Quack.—For many years Carl C. Lantz, of New York City and Atlantic Highlands, N. J., has been quacking it through the mails. *The Cosmopolitan Magazine*, for July, 1906, contained an advertisement for "The Adonis" sold at that time by Mr. Lantz, who was trading as the Lantz-Adonis Co., in New York City. The Adonis was said to preserve and increase mental, physical and genital vigor. *Vanity Fair* for April, 1916, contained an advertisement of four nostrums put out by Lantz, who at that time operated under the trade name of C. C. Lantz Laboratories. The preparations were "Lantz Face Balm," "Lantz Hair Life," "Lantz Foot Tingle," and "Lantz Riggs Remedy." In 1918 he offered "Lantz Absorbent Pastilles" which were sold as "the modern remedy for the prostate gland, the seat of sexual weakness." He also offered the "Lantz Supporter" and his "Vacuum Congestor" a device alleged to be sold as "a means to develop, strengthen and enlarge shrunken or naturally small organs." On October 10, 1927, the Postmaster General issued a fraud order against Carl C. Lantz covering both the New York and the Atlantic Highlands, N. J, addresses. (Jour. A. M. A., October 29, 1927, p. 1534).

Di-Citurin.—In an advertising circular this product is said to be "Mono Potassium Diacetyl Citrate" and claims are made for its action that by no stretch of even a lively imagination could seem to be inherent in a substance of such composition. The report of thirty cases of hypertension given in the advertising is far from being sufficiently detailed or extensive to be convincing. In vain one looks for Di-Citurin among the agents described in New and Nonofficial Remedies. This may be taken to mean that it is unacceptable to the Council on Pharmacy and Chemistry, or that it had not yet been submitted to or passed on by the Council. In either case it is well for the physician to refrain from using it until it has been passed by the Council. (Jour. A. M. A., October 29, 1927, p. 1537).

Blueberry Leaf Extract.—The Council on Pharmacy and Chemistry publishes a preliminary report on a blueberry leaf extract which has been proposed for use in the treatment of diabetes. A report on this product was read at the last meeting of the American Medical Association by F. M. Allen, who had continued the work begun in Germany by Wagner and others. The product used by Allen was made by E. R. Squibb & Sons; it is not being marketed and will not be offered to physicians in general until its usefulness has been demonstrated. The Council published its preliminary report to call attention to the possible usefulness of the blueberry leaf extract used by Allen. At the same time the Council points out that thus far no standards have been developed which will insure a uniform product; that the actual value of the product in the treatment of diabetes has not yet been proved; and that such proof must come from workers who have the necessary clinical opportunities and laboratory facilities on which to base judgment. (Jour. A. M. A., November 5, 1927, p. 1607.

Introducing New Drugs.—The report on blueberry leaf extract which the Council on Pharmacy and Chemistry publishes, illustrates the praiseworthy and increasing tendency on the part of the large pharmaceutic firms to adopt the ideal method of introducing a new drug, namely, demonstration of the drug's chemical identity and uniformity; report of animal experiments giving promise of therapeutic value; report of clinical trials under the auspices of the discoverer; and provision for confirmatory study of the drug's therapeutic worth by independent investigation. What a contrast to the unscientific and haphazard flooding of the market with new and untried drugs that formerly obtained here and still obtains abroad. The change has arisen from the increasingly critical attitude of the American medical profession. This, it seems reasonable to believe, is due to the faithful and persistent work of the Council on Pharmacy and Chemistry. (Jour. A. M. A., November 5, 1927, p. 1610).

Book Announcements

Proceedings of the Twenty-first Annual Convention of the Association of Life Insurance Presidents. Held in the Hotel Astor, New York, N. Y., December 8 and 9, 1927. 8 vo. Paper. 288 pages.

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Editorial

Blood and Iron.

The color of the whole blood is red, although white blood cells form a constituent part of the blood. The color scheme of the bile is yellow, golden yellow, sometimes with a greenish tint. The color of urine is amber or yellowish, sometimes spoken of as of straw-color. The play of color in blood and muscles. in the bile, and in urine, partaking of supplementary roles, appears to afford occasion for comment in connection with iron and iron reserve of the body. Red blood gives the body its color scheme. Deficiency of red betokens a deficiency of iron, for iron enters into the formation of hematin in hemoglobin of the red blood corpuscles. Hemoglobin is a complex substance composed of globin (histons) and a pigment: hematin, (C_{34} H_{25} N_4 Fe O_5). Hematin forms about 4 per cent, while protein forms about 86 per cent of the molecule. The blood contains about five million, normally, of red blood cells per cubic millimeter. Physiologists estimate that there are 14 grams of hemoglobin to each 100 c.c. of blood; that in a man weighing 68 kilograms there is 500 to 700 grams of hemoglobin, and that this hemoglobin is distributed among some 25,000,000,000 (twenty-five billion) red blood cells. The red corpuscles are probably constantly undergoing formation and destruction. The length of life of the red corpuscle is estimated to be from two to four weeks. It is not known just how red cells go to pieces, whether in the stream by hemolysis or in the liver and spleen by special agencies of dismemberment as Kupffer cells which, in digesting red blood cells, liberate iron of hemoglobin. Study of the termination of the vast hemoglobin content of the body and its final elimination has been going on in various laboratories for some time. The formation of red blood cells is also an interesting page in physiology, but suffice it to note here that the bone marrow furnishes the body with the red blood cell and outfits it with hemoglobin mechanism with its hematin content. The destruction of red blood cells and the liberation of hematin, and its chemical change and its final liberation from the body as bile pigment and urobilin is another phase of the subject which we can not follow here.

The foregoing comment is made in order to call attention to an article by Williamson and others (*A. I. Medicine*, Vol. 40, No. 5, p. 669), on iron reserve in the body. While it has been generally thought that iron in the tissues, particularly the liver and spleen, serves as an iron reserve for the formation of hematin in hemoglobin, experiments show this to have been unavailable.

These workers show that a reservoir of readily utilizable iron may be built up in the liver and spleen of rats by placing them on a diet containing liver and that this store may be used promptly after producing an anemia by bleeding the animal.

They observed that animals placed on a liver diet possess 141 per cent more iron in the spleen and 57 per cent more iron in the liver than animals fed on a casein diet, although those fed on caesin appeared to produce enough iron to maintain a concentration of hemoglobin adequate to the normal destruction of hemoglobin.

Bile Pigment.

The belief that bile pigments are formed in the liver from hemoglobin either by the liver cells themselves or by a combined action of the liver and endothelial (Kupffer) cells is questioned.

Mann has stated that bilirubin accumulated progressively in the body after the liver had been removed. He attempted by a study of the difference in bilirubin content of arterial and venous blood from given organs to run down the site of the formation of bilirubin. Since the liver had been eliminated as the only source, bilirubin content of major arteries and veins were compared. The

bilirubin content of blood going and coming from the kidneys and intestines was found to be the same. There was an increase of bilirubin in venous blood from spleen, limbs, thorax and head. Venous blood showing the greatest amount of bilirubin was from the spleen, skin, fascia, muscle and bone marrow.

As a result of Mann's study it was stated that bilirubin is added to the blood as it traverses the spleen and bone marrow. Whether or not, bilirubin is formed in the liver, Mann states, has not been determined. While the site of formation is open to question, the appearance of this coloring in the bile, as secreted from the liver, shows that the pigment, arising from hemoglobin destruction in spleen and bone marrow, finds its egress from the blood system into the intestinal tract. Its further function and fate in the intestines is not now to be considered.

Muscle Pigment.

Red muscle coloring is believed to be due to a special pigment, which, according to Howell, resembles in its structure and properties hemoglobin. This pigment is known as myohematin. It probably possesses power of holding oxygen in loose combinations and in this way plays a part in exchange of oxygen and carbon dioxide.

Urine Pigment.

A late editorial in *J. A. M. A.* (Dec. 24, 1927), comments on pigment in the urine. The amber urine, with its urinary pigment, finds its source of coloring from the blood. Urochrome has excited much inquiry, as has bile pigment. Its site of formation, its source, have long excited speculative inquiry, but, from scientific point of view, much remains unproven, although the chemistry and physiology of normal pigment of the urine are still under scrutiny. One may easily fall back upon hemoglobin dissolution and destruction as a possible source.

The quantity variations of elimination of urinary pigment are probably proportional to the variations in the metabolism of blood, liver, spleen, bone marrow, muscle tissue. Fasting, administration of acids, any stimulation of metabolic activity brings on increased discharge of pigment in urine. There seems to be parallel between urochrome elimination and basal metabolic rate. Whether it arises from hemoglobin destruction or tissue protein, or respiratory pigment in muscle, liver, spleen, or bone marrow; the actual origin of its chemical formation is yet an unsolved problem.

News Notes

American College of Surgeons—Local Section.

The Sectional Meeting of the American College of Surgeons for the states of Virginia, West Virginia, Maryland and the District of Columbia is to be held at Roanoke, Virginia, on January 18 and 19, 1928, with headquarters at the Patrick Henry Hotel.

The program includes dry clinics in the Roanoke hospitals, clinical addresses, scientific meetings, and a Hospital Standardization program consisting of a round table conference, discussions, and visits to hospitals. A community Health meeting will be held on the evening of January 18.

A distinguished group of visiting surgeons will participate in the program of clinical addresses and scientific papers. The complete detailed program has been sent members.

Information about the various hospital conferences and scientific meetings can be obtained at the Registration Desk in the Patrick Henry Hotel.

Mark your calendar now for these dates. The Executive Committee is depending upon every Fellow of the College to do his part in making the Virginia, West Virginia, Maryland and District of Columbia Sectional Meeting a success.

Enforcement of Caustic Poison Act Begun.

The branch stations of the Food, Drug and Insecticide Administration of the United States Department of Agriculture, which are located in sixteen of the leading trade centers of the United States, have been instructed to make a survey in their respective territories of the products subject to the Federal Caustic Poison Act and to initiate such action as may be necessary for the enforcement of the act.

The purpose of the act is to safeguard the distribution and sale of certain dangerous caustic or corrosive acids, and alkalies in interstate and foreign commerce. It became a law on March 4, 1927, but no penalties were to be imposed until September 4, 1927, six

months after its enactment. Manufacturers of the products subject to the act have now had over nine months in which to familiarize themselves with the requirements of the act and to label their preparations in accordance with its terms. It provides in general that dangerous caustic or corrosive acids and alkalies, when in a container suitable for household use, shall bear a conspicuous and easily legible label containing the common name of the substance; the name and place of business of the manufacturer, packer, seller, or distributor; the word "Poison" to be in uncondensed, Gothic capital letters, in type not smaller than the largest type used on any part of the label; the label shall also bear directions for treatment in case of accidental personal injury.

Unveil Tablet to Dr. William Brown.

The Susan Riviere Hetzel Chapter, Daughters of the American Revolution, of Washington, D. C., recently unveiled a bronze tablet on the grave of Dr. William Brown, at old Pohick Church, on the Richmond-Washington Highway. Dr. Brown is known as the personal friend and physician of General George Washington, and physician general in the Continental Army. In addition to his services in the Revolutionary War, Dr. Brown should be honored for his work on the first American Pharmacopeia, an original copy of which is kept in a safety vault in the War Department in care of the Surgeon General.

It is a matter of interest that Dr. William Brown is an ancestor of one of our own members—Dr. Alexander G. Brown, Jr., of Richmond.

Married.

Dr. Wilkins Jeffries Ozlin, Dundas, Va., and Miss Mary Adams Smallwood, Roanoke, Va., December 21.

Dr. John Thomas Daves, Danville, Va., and Miss Mary Weldon Kerfoot, Shawnee, Okla., December 13.

Dr. John Arnold Board, Altavista, Va., and Miss Mamie Bowman, Lynchburg, Va., December 14.

Dr. John Robert Bagby and Mrs. Perle Stearnes Robinson, both of Newport News, Va., December 10.

Dr. William Richard Morton and Miss Myrtle Moore Granger, both of Richmond, December 20.

Dr. Luther L. Vann, formerly of Danville, Va., and Miss Cornelia Howell, of Mars Hill College, Asheville, N. C., December 23.

Dr. E. G. Moore, Elm City, N. C., and Miss Ursula Daniel, Halifax, N. C., November 10.

Eastern Shore Hospital.

It is announced that the new hospital which is being erected at Nassawadox, near the border of Accomac and Northampton Counties, Virginia, is to be opened about July 1, 1928. The local committee has been hard at work raising the necessary funds and fully half the people on "The Shore" have contributed to the hospital fund. It is a four story brick and stone building and will be equipped in an up-to-date manner. The staff of the Johnston-Willis Hospital, Richmond, has agreed to assist the local profession and will have a member of its staff in the hospital at all times.

To Succeed Dr. Geo. H. Preston.

Dr. Harvey Coghill, Richmond, who for sometime has been away studying under the Commonwealth Fund of New York, will succeed Dr. George H. Preston, resigned, as director of the Children's Memorial Clinic in this city. He will enter upon his duties about April the 1st. Dr. Basil B. Jones will continue as consulting pediatrician. Dr. Preston left the end of the year for Baltimore, where he is now executive secretary of the newly organized Maryland Mental Hygiene Society Clinic in that city.

Dr. W. E. Chapin, a former Richmonder and alumnus of Johns Hopkins University, is now in charge of the pediatric work, and Dr. Helen Langner, of the Yale Medical School, recently with the Girls' Service League of New York City, has the psychiatric work.

The Medical Society of the District of Columbia,

At its annual meeting in December, elected officers for the year 1928, as follows: President, Dr. Oscar B. Hunter; vice-presidents, Dr. Robert Young Sullivan and Dr. Louise Tayler-Jones; secretary-treasurer, Dr. Coursen B. Conklin (re-elected). New members of the Executive Committee, for a term of three years, are: Dr. Ralph M. LeComte, Dr. Frank Leech, and Dr. Charles S. White. Dr. Philip S. Roy was re-elected delegate to the American Medical Association with Dr. Thomas A. Groover as alternate.

Dr. J. B. Dalton,

Richmond, left the first of this month for New York, to take post-graduate work in orthopedic surgery. He will spend the first

year at the Hospital for Ruptured and Crippled in New York City, following which he will be at the Reconstruction Hospital in that city for several months. He will then go to the Robert Jones Clinic, Liverpool, England, for several months before returning to Richmond.

The Church Hill Medical Society of Richmond,

At its annual meeting in December, elected Dr. William R. Weisiger as president for the coming year, Dr. J. G. Trant vice-president, and re-elected Dr. R. S. Faris secretary-treasurer. Dr. J. Gordon Boisseau was elected reporter and Dr. B. L. Phillips librarian.

Dr. C. D. Kunkel,

Pulaski, Va., is out again, after having been sick for several weeks.

Scholarships on Child Development.

A limited number of national scholarships in child development for 1928-29 have been announced by the National Research Council, under a grant from the Laura Spelman Rockefeller Memorial. They are open to college graduates of the United States and Canada with at least a year of graduate work and training in sciences basic to the study of child development. They carry a stipend of $1,000 for nine months' work, with an option of an additional $200 for a summer session of six weeks. Application should be made by January 21, 1928, to L. R. Marston, executive secretary, Committee on Child Development, National Research Council, Washington, D. C.

New Mental Hygiene Clinic in New York City.

A mental-hygiene clinic, which is an outgrowth of the experimental clinic established in 1922 by the National Committee for Mental Hygiene in co-operation with the Association for Improving the Condition of the Poor, was opened in New York City on October 1. This clinic is operated jointly for and by the State Charities Aid Association, the New York Association for Improving the Condition of the Poor, and he Brooklyn Bureau of Charities. An annual budget of $25,000 has been guaranteed for five years, half the funds being provided by the agencies and half by the Commonwealth Fund.

Dr. G. E. Faulkner

Recently returned to his home in South Boston, Va., after a visit of some length to friends in Tennessee.

Heads Local Dental Society.

Dr. John Bell Williams, business manager and member of the staff of McGuire Clinic, this city, has been elected president of the Richmond Dental Society, for the current year.

President of State Board of Medical Examiners.

The Virginia State Board of Medical Examiners, at its meeting in Richmond, last month, elected its vice-president, Dr. Philip W. Boyd, of Winchester, as president to succeed the late Dr. Robert Glasgow. Dr. J. H. Ayres, Accomac, was elected vice-president of the Board. The next meeting of the Board takes place June 19-22, 1928.

Civil Service Positions Open.

The U. S. Civil Service Commission, Washington, D. C., announces the following open competitive examinations, applications to be rated as received until the end of June, 1928:

Assistant medical officer, associate medical officer, medical officer and senior medical officer;

Dietitian;

Graduate nurse, graduate nurse (visiting duty), and graduate nurse (junior grade).

Proposed Regulation of Child Marrige in India.

A bill for the prevention of marriage of Hindu girls below the age of twelve and boys below fifteen came before the Indian National Assembly on September 15, 1927, and was discussed for the whole sitting. An official amendment that the bill be circulated for public opinion was negatived, and the assembly thus approved the principle of legislative prevention of child marriage.

The Southern Surgical Association,

Meeting in Augusta, Ga., the middle of December, had the record meeting in its history of forty years, with 238 surgeons, their wives and guests present. Out of the scientific program of forty papers thirty-seven were read and discussed. Dr. Guy Hunner, of Baltimore, presided. Seven new members were elected to Fellowship as follows:

Dr. Arthur Shipley, Baltimore, Md.
Dr. Carrington Williams, Richmond, Va.
Dr. R. W. Bolling, New York City.
Dr. Guy Aud, Louisville, Ky.
Dr. L. H. McKinnie, Colorado Springs, Col.
Dr. Willis D. Gatch, Indianapolis, Ind.
Dr. L. W. Grove, Atlanta, Ga.

The officers elected for the ensuing year were: President, Dr. Arthur C. Scott, Temple, Texas; Vice-Presidents, Dr. Robert C. Bryan, Richmond, Va., and Dr. Robert L. Rhodes, Augusta, Ga.; Treasurer, Dr. Julius H. Taylor, Columbia, S. C., and Secretary, Dr. Robert L. Payne, Norfolk, Va. The two latter officers were elected for a period of five years. The next meeting will be held December 11, 12 and 13, 1928, at The Greenbrier, White Sulphur Springs, West Virginia.

Dr. O. B. Darden,

Richmond, Va., has been elected president of the Duke University Alumni Association of Richmond, Petersburg and vicinity, for 1928.

Dr. B. B. McCutchan,

Clifton Forge, Va., was recently elected one of the directors of the Kiwanis Club of that city, for the present year.

Compensation for Child Workers in Illinois.

On July 1, 1927, the new provisions of the Illinois workmen's compensation act came into effect, under which illegally employed children who are injured in industrial accidents are now entitled to the benefits of the act and will also receive compensation amounting to one and a half times as much as they would have received if they had been legally employed. Before this legislation was passed illegally employed children had no rights under the compensation act but had to bring suit against their employers under the common law in case of injury. This remedy, however, was tried in comparatively few cases because of the cost, uncertainty, and delay of court procedure. It is expected that under the new law employers will observe more carefully the State child labor law and will demand adequate proof of age from their minor workers.

Central Psychiatric Hospital Association.

During the meeting of the American Psychiatric Association this year in Cincinnati there was formed the Central Psychiatric Hospital Association, which is composed of private sanitariums for the care and treatment of nervous and mental diseases. The organization was the culmination of several years' thought and a feeling that the necessity existed for such an association. At Minneapolis in October permanent officers were elected as follows:

President, Dr. Thomas Ratliff, Cincinnati, Ohio; Vice-President, Dr. Russell Doolittle, Des Moines, Iowa; Secretary-Treasurer, Dr. D. A. Johnston, Cincinnati, Ohio. Councillors, Dr. Frank Norbury, Jacksonville, Ill., and Dr. Karl Menninger, Topeka, Kans.

The purposes of this Association are to foster co-operation among private hospitals for nervous and mental diseases for their mutual benefit and to promote and maintain higher standards, increase efficiency of organization and the advancement of scientific care and treatment for those in their care.

A committee on standards was to meet with the council in Chicago, December 14, 1927, to formulate standards for hospitals of this type.

College Rank Conferred Upon St. Luke's Hospital at Tokyo.

State recognition of the high rank of Saint Luke's International Hospital School for Nurses, Tsukiji, Tokyo, was officially confirmed by the Imperial Japanese Department of Education by the publication under date of November 24, 1927, of an official decree conferring college (semmon gakko) rank on the institution, the course of study being for three years, and one year extra for those taking special higher training.

The School is the first institution for nurses in Japan to be thus recognized, no girls being admitted without a diploma from a girls' high school. Saint Luke's International Hospital is under the management of the American Episcopal Mission, its head being Dr. R. B. Teusler, surgeon to the American Embassy.

New Hospital for Crippled Children in New Jersey.

A citizen of New Jersey has recently endowed for $1,000,000 a new home and hospital for crippled children to be built in Shrewsbury Township as a memorial to his son, and to be known as the Raleigh Fitkin Memorial Institution. It is to educate the children as well as to improve their physical condition. A self-sustaining farm will be operated in connection with it.

Officers in Omega Upsilon Phi Fraternity.

Three Richmond alumni of Nu Chapter, located at Medical College of Virginia, were elected as grand officers of Omega Upsilon Phi Medical Fraternity at the national meeting held recently in Philadelphia. They are: Dr. W. Ambrose McGee as Senior Grand Master; Dr. Emmett H. Terrell as Grand Scribe: and Dr. Clifford A. Folkes as Grand Chancellor of Exchequer. At this meeting, Mrs. McGee was awarded a $25.00 prize for the best song submitted to the 1927 convention.

Dr. and Mrs. Charles E. Conrad,

Harrisonburg, Va., recently enjoyed a vacation spent in New York City.

Diagnostic Standards of Tuberculosis.

Early in this year, all tuberculosis associations in the United States plan to put on an early diagnosis campaign.

In this connection, it is stated that in 1917 a Committee on Diagnostic Standards, appointed by the National Tuberculosis Association, set to work to formulate as simply and accurately as possible standards and criteria for the diagnosis of tuberculosis. The seventh edition of the booklet prepared by this committee—"Diagnositc Standards for Pulmonary and Glandular (Hilum) Tuberculosis"—was published November, 1926. It contains much of interest for the general practitioner and tuberculosis specialists, and may be obtained free from the National Tuberculosis Association, 370 Seventh Avenue, New York City.

U. S. Public Health Service Annual Report.

The Surgeon General of the U. S. Public Health Service, in his annual report, states that health conditions generally throughout the world were better during the year ended June 30, 1927, than for any previous year on record. The first half of the year covered in this report was characterized by unusually low death rates in foreign countries. The influenza epidemic which affected a considerable part of Europe at that time kept it from being much lower.

The health of the people in the United States was generally good during the period reported, as compared with previous years, the death rate for all causes for the calendar year of 1926, in 28 states, being 12.1 per 1,000 population. There was an increase in this period in deaths from respiratory diseases but a decrease in the death rate from a number of diseases, the case and death rate for diphtheria being the lowest ever recorded. This, it was stated, was undoubtedly the result of the use of antitoxin and toxin-antitoxin. The work of the Service is far-reaching and the report is excellent.

In closing, the Surgeon General makes several recommendations for the co-ordination of public health activities which would tend to eliminate duplication of effort in administration, research, and educational measures, such as would prove a decided step forward in the public health work of the United States.

Babies' Hospital to be in Medical Center.

Excavations have been begun for a twelve story building for the Babies' Hospital of New York City, as the eleventh unit of the New York Medical Center. It is expected that it will cost approximately a million and a half to build and equip this building, and a campaign will be put on during the winter months to raise money for this purpose.

World Child-Labor Standards.

Eighteen countries have ratified the draft convention adopted by the International Labor Office and submitted to the member nations of the League of Nations, which places the minimum age for entrance into industry at 14 years, and 20 countries have ratified that prohibiting night work of minors under 18 in industry, with certain exceptions for those over 16.

The Seaboard Medical Association of Virginia and North Carolina

Held a splendid meeting in Norfolk, Va., early in December, under the presidency of Dr. B. R. Kennon of that city. The papers were excellent and freely discussed and the oyster roast the last day was enjoyed by all. The following officers were elected for the 1928 session which is to be held in Washington, N. C., next December: President, Dr. David T. Tayloe, Jr., Washington, N. C.; vice-presidents, Dr. C. W. Eley, Portsmouth, Va.; Dr. S. P. Bass, Tarboro, N. C.; Dr. C. C. Smith, Norfolk; and Dr. V. P. Perry, Kinston, N. C. Dr. Clarence Porter Jones, Newport News, Va., and Dr. A. M. Burfoot, Fentress, Va., were re-elected secretary and treasurer, respectively.

American Social Hygiene Association.

As evidence of the large amount of work accomplished by this Association in the past year, it is stated that they covered 300,000 miles in their field work during 1927, and the Association's staff gave a total of 1,125 lectures, which were attended by 260,000 persons. Much other work is featured in the report of this Association which endeavors to help where service is needed. It is interesting to note that the Association gave special summer courses in lectures at the University of Virginia and William and Mary College, and a special institute for teachers was provided also in Harrisonburg, Va.

Dr. Emory Hill,

Richmond, Va., by invitation, gave an address at the annual dinner of the Indiana

Academy of Ophthalmology and Otolaryngology, in Fort Wayne, the middle of December.

Thanks to our Members.

The responses have been good to the blue slips placed in the December journals. We realize, however, that December is a heavy month, with Christmas, taxes, automobile licenses and innumerable other matters to wind up a year. Now that we are getting back to normal again, however, we hope many more members may look up the "blue slips" in their December journals and send checks for 1928 dues. No one knows better than doctors what it costs in time and postage to get out bills. This is just "a word to the wise".

Employment Success of Mental and Physical Defectives in England.

Of 1,056 children 18 years of age or under, who in 1926 were "after-care" cases of special schools for mental defectives in London, 801 were found to be gainfully employed, 128 were employable though temporarily out of work, and only 88 were unemployable, according to the annual report of the London County Council for 1926. The After-Care Association for blind, deaf, and crippled children reported that during a recent year 1,248 of 1,580 former inmates of institutions for these classes of children were known to be gainfully employed, 123 were found unemployable, and the remainder were continuing training or were not yet placed.

Dr. Claude M. Lee,

Who, with his family returned from China when all foreign missionaries were ordered to leave the country last summer, recently received orders to return to his post and expected to leave early in January for Shanghai where he will be located while re-organizing his work and hospital at Wusih.

Dr. C. H. Iden,

Berryville, Va., has been elected junior warden for Treadwell Lodge A. F. & A. M., of that place, for the year 1928.

The Southern Medical Association,

At its meeting in Memphis, Tenn., in November, elected Dr. William R. Bathurst, Little Rock, Ark., president; Dr. Edward C. Ellett, Memphis, and Dr. William L. Dunn, Asheville, N. C., vice-presidents; and re-elected Mr. C. P. Loranz, Birmingham, Ala., secretary-manager. The next meeting is to be held in Asheville, N. C., November 12-15, 1928.

The Virginia State Health Association,

Meetng in Suffolk, January 4th, under the presidency of Dr. L. L. Williams, of the State Health Department, elected the following officers for the ensuing year: President, Dr. C. B. Ransome, Roanoke; vice-presidents, Dr. C. H. Dawson, Suffolk, and Dr. P. M. Chichester, Clarendon; secretary-treasurer, Dr. Powhatan S. Schenck (re-elected), Norfolk.

Dental Work for School Children in Germany.

Of 92 German cities having populations of more than 50,000, a total of 50 are maintaining dental clinics for school children, while in the other cities free examinations and treatment are provided at university clinics, by private dentists employed by the municipality, or through sickness-insurance funds. In at least 28 cities the service is extended to the compulsory continuation schools. The municipalities meet almost the entire cost of the service, though some collect a small fee from the patients.

No Juvenile Crime Wave in Norfolk, Va.

The juvenile and domestic relations court of Norfolk, Va., has reported that since its establishment in 1919 less than 1 per cent of the minors under 18 years of age who have been brought before the juvenile court have subsequently been convicted of any criminal offence. Moreover, the total volume of crime in the city has apparently steadily decreased. The total indictments for felony before the grand jury during 1923-1927, inclusive, were less than half the number during the five-year period immediately preceding.

Dr. Warren T. Vaughan,

Of Richmond, Va., addressed the Academy of Medicine of Toledo, Ohio, at their December meeting on "The Correlation of Specific and Non-Specific Factors in Allergy."

Dr. A. S. Davis,

Of the class of '26, Medical College of Virginia, after a year's internship at St. Luke's Hospital, San Francisco, Cal., is now located at 9311 East Fourteenth Street, Oakland, Cal.

Dr. Allan M. Kimbrough,

Who has been for sometime taking postgraduate work in orthopedics in the New York Orthopedic Dispensary and Hospital, spent the holidays with relatives in Richmond, Va., his former home.

The Dangerous Age in Employment.

Children 16 and 17 years of age suffer proportionately more injuries while at work than

children either older or younger, according to a recent report of the Wisconsin Industrial Commission on child labor in that State.

Dr. Albert E. Wilson,

Norfolk, Va., announces the removal of his offices from Withers Building to Medical Arts Building, that city.

Dr. and Mrs. Howard Masters,

Richmond, spent the holiday season at their former home in Fredericksburg, Va.

Intelligence Tests for Blind Children.

During the last 10 years, intelligence tests adapted for blind children from the tests used for children with normal sight have been given in more than half the schools for the blind in the United States. The Pennsylvania Institute for the Instruction of the Blind in Pennsylvania and the Perkins Institute for the Blind in Massachusetts have undertaken experimental studies in the psychology of the blind, in the hope that such research will ultimately do for the education of the blind what is being done for the general educational system of the country, through the classification of students according to ability, the diagnosis of their individual difficulties, and vocational guidance.

Dr. Richard P. Bell,

Staunton, Va., was recently elected president of the Staunton and Augusta Alumni Association of the University of Virginia for 1928.

Dr. J. Shelton Horsley,

Richmond, on December the 7th, presented a paper by invitation before the Society of Alumni of Bellvue Hospital, New York City, his subject being "Some Underlying Principles of Intestinal Therapy." Dr. Horsley is one of the five honorary members of this Society.

The American Legion Believes in Home Care.

Of the 523 children in care of the child-welfare division of the American Legion at the end of October, 391 were in the mothers' homes, 39 with relatives, 45 in foster homes, and only 48 in legion billets, local institutions, or hospitals. During October the per capita cost of providing for children in their own homes was $10.75; in local institutions, $24.48; and in legion billets, $70.

The Richmond Eye, Ear, Nose and Throat Society

Held its annual meeting in this city, December the 12th, with Dr. T. E. Hughes, Vice-President, presiding. Dr. R. E. Mitchell was elected President for the coming year and Dr. W. S. Hodnett, Vice-President. Dr. F. H. Lee was re-elected Secretary-Treasurer.

It was announced at this meeting that the retiring president, Dr. R. H. Wright, who was badly hurt in the accident at Tate Field, early in November, had left the hospital the first week in December and expected to be able to resume his practice the first of February.

Dr. and Mrs. Tom Williams

Have returned to Miami Beach, Fla., after spending the summer and early fall in Italy. Since their return, Dr. Williams has visited the principal neurological clinics in the East and, on his way South, spoke before several medical societies and colleges.

Dr. and Mrs. J. T. Buxton,

Who have been for several months in the Adirondacks, spent the Christmas holidays with their family in Newport News, Va. They left early in January for California and points of interest on the West Coast, and will be away several months longer.

The Richmond Pediatric Society,

At its meeting the first of this month, elected Dr. T. D. Jones president; Dr. John S. Weitzel vice-president; and re-elected Dr. W. Ambrose McGee secretary-treasurer.

Dr. Samuel Downing,

Newport News, Va., was called to his home in Lancaster County, Va., the latter part of December by the illness and death of his father, Senator Thomas A. Downing,—for many years a prominent and popular figure in Virginia politics.

Dr. James A. Martin,

Lumberton, N. C., of the class of '15, Medical College of Virginia, was elected President of Robeson County, N. C., Medical Society, at its regular meeting the middle of December. At the same time, Dr. E. L. Bowman, Lumberton, of the class of '14, was elected a Censor. Other officers elected at this meeting were Dr. C. T. Johnson, Red Springs, Vice-President, and Dr. J. N. Britt, Lumberton, Secretary-Treasurer. The other Censors are Drs. J. McN. Smith, of Rowland, and R. S. Beam, of Lumberton.

Dr. Frank McLeod, Florence, S. C., was the speaker of the evening, and told of the advances in medicine and surgery since he began practice nearly forty years ago.

Dr. James L. Early,

Radford, Va., was elected one of the directors of the Radford Kiwanis Club, at its annual meeting early in December.

Will Speak in Richmond.

Dr. Louis B. Wilson, director of the Mayo Foundation for Medical Education and Research, will be the founder's day speaker of the ninetieth session of the Medical College of Virginia, Richmond, on Friday, January 20, 1928. At the same time the cornerstone will be laid for Cabaniss Hall, the new women's dormitory which will serve chiefly the school of nursing. This building will house one hundred and thirty-four young women and will cost approximately two hundred thousand dollars.

Dr. Charles McCulloch,

After a five year "furlough", recently resumed the practice of medicine, with offices in Lexington, Va.

For Sale:

X-Ray Tube Stand and High Frequency Outfit, in excellent condition. Diethermy, Oudin, Tesla currents; Cautery and Diagnostic Lights obtainable conveniently. Address "Tesla," care VIRGINIA MEDICAL MONTHLY.

Obituary

Dr. Presley W. Moorehead,

Clarendon, Va., died at his home in that place, November 29, at the age of sixty-seven. Dr. Morehead studied medicine at the College of Physicians and Surgeons, Baltimore, from which he graduated in 1884 and had been for some years a member of the Medical Society of Virginia. His wife and several children survive him.

The following resolutions were adopted on the death of Dr. Morehead by the Arlington County Medical Society, at a called meeting on December the 5th:

WHEREAS, It has pleased our Heavenly Father to remove from the scene of his earthly labors our fellow practitioner, Presley W. Morehead, M. D., of Clarendon, on Tuesday, November 29, 1927; therefore, be it

RESOLVED, That the physicians of Arlington County deplore the death of Dr. Morehead, and hereby express our sincere sorrow and grief to his beloved wife and children, and his many friends, and be it further

RESOLVED, That a copy of these resolutions be sent to his bereaved wife, whom we sincerely condole with on her loss; that a copy of these resolutions be spread upon the minutes of the Society.

H. A. HORNTHAL, *President,*
B. H. SWAIN, *Sec.-Treas.,*
J. H. WALTON,
W. C. WELBURN,
Committee.

Dr. Morton Eldridge Hundley.

A cablegram received in Martinsville, Va., on January the 2nd, announced the death that morning of Dr. Hundley, of that place, at Saint Moritz, Switzerland, following an illness of several days with pneumonia. Dr. Hundley was recently married for the second time and had gone to Europe with the expectation of spending the winter months. He was fifty-two years of age and graduated in medicine from the former University College of Medicine, Richmond, in 1899, joining the Medical Society of Virginia that same year.

Resolutions on Death of Dr. Robert Glasgow.

The Virginia State Board of Medical Examiners, at its semi-annual meeting in December, adopted the following resolutions on the death of its president, Dr. Robert Glasgow:

Whereas, our dear friend and companion, Dr. Robert Glasgow, has passed to his reward, it seems fitting that we who knew and loved him should give expression in our sorrow to a few words of affection and appreciation.

Each member of this Board feels a peculiar and personal grief in his loss. As our presiding officer for so many years, he showed to all unfailing courtesy and fairness. He was gentle and lovable as a companion, firm as the everlasting hills in his stand for right and honest dealing. He was a Virginian of the old school, a beloved physician, who impressed those who knew him with his simplicity, wisdom and Christian dignity. In his death, the state has lost a good citizen and faithful official, the medical profession a loyal physician of the highest type and the Examining Board a capable and helpful adviser.

Your committee submits these few words and asks that they be recorded in the Minutes as the expression of our Board and that a copy he sent to Dr. Glasgow's family and published in the Journal of the State Medical Society.

(Signed)
I. C. HARRISON, *Chairman,*
H. U. STEPHENSON,
G. W. JOHNSON.

Dr. John William Waldron,

Grundy, Va., died October 23, 1927, of cerebral hemorrhage. Dr. Waldron was born in Tazewell County, Virginia, seventy-five years ago and attended the Louisville Medical College. He had been a member of the Medical Society of Virginia since 1904.